

Award Number: W81XWH-09-2-0172

TITLE: Improving Deployment-Related Primary Care Provider Assessments of PTSD and Mental Health Conditions

PRINCIPAL INVESTIGATOR: Susan Douglas Kelley, Ph.D.
..... Leonard Bickman, Ph.D.

CONTRACTING ORGANIZATION: Vanderbilt University
..... Nashville, TN 37203-2416

REPORT DATE: \

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT:

.... Approved for public release; distribution unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

REPORT DOCUMENTATION PAGE				<i>Form Approved</i> OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE October 2013		2. REPORT TYPE Annual		3. DATES COVERED 30 September 2012 – 29 September 2013	
4. TITLE AND SUBTITLE Improving Deployment-Related Primary Care Provider Assessments of PTSD and Mental Health Conditions				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER W81XWH-09-2-0172	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Kelley, Susan Douglas; Boyd, Stephanie; Bickman, Leonard E-Mail: susan.douglas@vanderbilt.edu				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Vanderbilt University Nashville, TN 37203-2416				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT This project addresses the need for research on service delivery approaches for Service Members with combat-related physical or psychiatric symptoms, including Posttraumatic Stress Disorder (PTSD) and/or post-concussive symptoms. As a primary care encounter, the post-deployment health reassessment (PDHRA) process is critical to force health protection efforts. The project will develop and test the efficacy of a focused training and feedback intervention for health care providers designed to increase Service member reports of behavioral health concerns and Service member acceptance of a referral for further assessment. The project has two goals. (1) Develop an evidence-based training program for providers who deliver deployment related assessments. (2) Evaluate the feasibility and efficacy of a targeted training and feedback program on primary care provider interviews and clinical communication patterns related to Service member behavioral health condition identification and referrals. To accomplish these aims, a training workshop that incorporates experiential learning strategies and evidence-supported characteristics of high quality communication training programs was piloted at 4 sites, reaching 23 providers. Multi-method and multi-reporter data include survey data (Service members and providers), program manager interviews, and electronic health data. Preliminary analyses indicate positive impact of the workshop: (a) rated as acceptable and feasible by participating providers; (b) increased providers' patient-centered communication skills and expected behaviors during PDHRA interview as rated by Service members; (c) increased providers' identification of BH concerns in context of PDHRA encounters where Service members anonymously reported BH concerns; and (d) affected PDHRA provider documentation, with more concerns and One Source referrals yet fewer medical referrals. Further analyses, including covariates, are planned for year five.					
15. SUBJECT TERMS Training and feedback; provider behavior change; health risk appraisal; behavioral health					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 143	19a. NAME OF RESPONSIBLE PERSON USAMRMC
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (include area code)

TABLE OF CONTENTS

TABLE OF CONTENTS.....	3
INTRODUCTION.....	4
BODY OF REPORT	5
Vanderbilt University SOW Tasks.....	5
Task 1. Timing of Approvals and Institutional Review Board (IRB).....	5
Task 2 (Aim 1). PDHRA Focus Groups	5
Task 3 (Aim 1). Secondary Analysis of PDHRA Data from Previous Evaluation	5
Task 4 (Aim 2). Training and Feedback Intervention Efficacy Study	6
Task 5. Expert Panel Meetings	8
Task 6. Project Planning Meetings.....	8
Task 7. Preparation of Final Reports	8
Purdue University Scope of Work (SOW) Tasks.....	8
Task 1. Analysis of merged Veteran's Health Administration (VHA) and DoD data	8
Task 2. Preparation of Final Reports	9
KEY RESEARCH ACCOMPLISHMENTS	9
REPORTABLE OUTCOMES	10
CONCLUSIONS.....	10
REFERENCES.....	11
Appendix A: Revised Scope of Work.....	13
Appendix B: Data Linking Procedures and Timeline	101
Appendix C: Presentation Given at the 2013 American Psychological Association Annual Meeting.....	108
Appendix D: Presentation Given at the Force Health Protection and Readiness Psychological Health Forum.....	119
Appendix E: Expert Panel Membership Roster	140

INTRODUCTION

This project addresses the need for research on service delivery approaches for Service members with combat-related physical or psychiatric symptoms, including Posttraumatic Stress Disorder (PTSD) and/or post-concussive symptoms. As a primary care encounter, the post-deployment health reassessment (PDHRA) process is critical to force health protection efforts, and the improvement of this process has been the focus of the work reported here. This work is informed by a previous evaluation of the PDHRA process, a collaborative effort between Vanderbilt University (VU) and Force Health Protection and Readiness (FHP&R). The final report of the evaluation conducted under this previous contract is available on Defense Technical Information Center (DTIC) at <http://handle.dtic.mil/100.2/ADA528063>.

This project has two goals. (1) Develop an evidence-based training program for providers who deliver deployment related assessments. (2) Evaluate the feasibility and efficacy of a targeted training and feedback program on primary care provider's interview and clinical communication patterns related to Service member behavioral health condition identification and referrals. Three research aims include: (1) Explore providers' perceptions of workshop acceptability and feasibility; (2) Assess impact of workshop on Service member ratings of provider communication skills; (3) Determine efficacy of workshop on provider identification of Service members' psychosocial concerns.

To accomplish these aims, a training workshop that incorporates experiential learning strategies and evidence-supported characteristics of high quality communication training programs was developed and piloted at 4 sites to a total of 23 providers during Year 3. In addition to the providers who attended the workshop, data were collected from 28 providers who will serve as a control group (they did not attend the workshop), resulting in a quasi-experimental research design that controls for common threats to validity such as changes that occur over time independent of the intervention. Pre- and post-outcome measurements included brief post-PDHRA surveys completed by the Service member on tablet computers (anonymously) and provider immediately after each PDHRA interview. These surveys were administered at all sites for a period of time before and after the workshop (typically 2-3 days before and 2-3 days after), and were subsequently linked to actual PDHRA data to facilitate evaluation of workshop efficacy. Additional measures included a program manager interview and surveys completed by providers before and after the workshop. Year 4 activities have focused on analysis of the data collected in Year 3. Results of these analyses show that compared to control group providers, providers who attended the workshop received higher ratings of communication skills from Service members; identified more psychosocial concerns among Service members who reported such concerns on VU's anonymous survey; and reported an increased number of concerns on PDHRAs (while also decreasing the number of medical referrals but increasing referrals to Military One Source).

The project is a cooperative effort among VU, FHP&R, and Purdue University (VU's subcontractor). The project period of performance is 30-SEP-09 to 31-JUL-14. This report summarizes Year 4 (30-SEP-11 to 29-SEP-13) progress on scope of work (SOW) activities, key research accomplishments, and reportable outcomes. We conclude by summarizing results to date and projecting work to be accomplished through the remainder of the project.

BODY OF REPORT

Vanderbilt University SOW Tasks

Task 1. Timing of Approvals and Institutional Review Board (IRB)

Task 1 activities are oriented to ensuring that all proper approvals and IRB activities are completed in a timely manner, so that the provider intervention and other research activities proceeds according to schedule. In Year 4, IRB approvals were limited to continuing review submissions, all of which were approved by both VU and MPMC IRBs by 12-JUN-13. One of these submissions (the Aim 2 Secondary Analysis Protocol) involved the reporting of a non-compliance with protocol event in which AFHSC had inadvertently sent Service member Social Security Numbers to VU. On 12-JUN-13, the Army MPMC IRB sent documentation of its acceptance of the report and ruling that no additional actions pertaining to the protocol noncompliance were required.

During Year 4, VU also requested and received approval to add a third no-cost extension. Approval for a three month extension was received on 16-OCT-13. On 29-OCT-13 our portfolio manager recommended that we instead be granted a 6 month no-cost extension and requested that VU submit a modified SOW. We received notice that the no-cost extension modification had been executed on 4-NOV-13. The SOW modification was submitted on 07-NOV-13 and is currently under review. (See Appendix A for the executed no-cost extension modification, the SOW modification currently under review, and the two SOW modifications previously executed in Year 3).

Task 2 (Aim 1). PDHRA Focus Groups

The original goal of Task 2 was to conduct focus groups of key stakeholders involved in the PDHRA process, and to analyze the resultant data with the intention of identifying key elements for training interventions relevant to content, format, and implementation. However, due to the impact of the National Defense Authorization Act (NDAA) legislation introduced between the time of the original proposal and the start of work, FHP&R and VU agreed not to conduct the focus groups pending Department of Defense (DoD) efforts related to the legislation. During Year 2, VU received approval from MPMC to eliminate the focus groups from the SOW (See Appendix A second section).

Task 3 (Aim 1). Secondary Analysis of PDHRA Data from Previous Evaluation

The stated goal of Task 3 is to conduct secondary analyses of the PDHRA data obtained during VUs previous DoD-funded evaluation of the PDHRA process, with a focus on identifying provider factors that contribute to candid Service member reporting of behavioral health concerns and to Service member acceptance of associated referrals. The resulting information was to be utilized in the development of the training and feedback intervention. While these tasks were originally scheduled for Year 1, delays in receiving the data caused them to become later year activities (See Annual Reports for Years 1, 2, and 3 for a description of these delays).

All data sets were merged and cleaned prior to the beginning of Year 4. During Year 4, analyses of these data have been ongoing, with preparation of publications derived from this analysis planned in Year 5.

Task 4 (Aim 2). Training and Feedback Intervention Efficacy Study

The activities listed under Task 4 address the central goal of VU's research, which is to develop and test the efficacy of a targeted training and feedback intervention designed to help providers increase Service member reports of behavioral health concerns and Service member acceptance of referrals for further assessment. Substantial changes to these original tasks were made and are described in the approved SOW modifications included as Appendix A.

The Year 3 Report describes the development and implementation of the intervention at four Army installations: Fort Campbell, Fort Stewart, Fort Carson, and Fort Bliss. In Year 4, Task 4 work has focused on Task 4h, data management and analysis to explore workshop feasibility and efficacy.

Data Management and Analysis

Intervention feasibility and efficacy were measured using a combination of data collected by VU at site visits and existing data collected by the military:

Measures Developed and Administered by VU*

1. **Provider Background Survey.** This initial background and self-efficacy survey was completed by providers before the training. When possible, this was administered to providers not participating in the training as well.
2. **Provider Workshop Evaluation.** This survey was completed by providers after the training.
3. **Provider Post-Workshop Self-Efficacy Survey.** This survey included the same battery of self-efficacy questions as was included in the Provider Background Survey and was completed by workshop participants 2-3 days after the training.
4. **Provider Post-PDHRA Survey.** This brief, 3-item form was completed by providers immediately after each PDHRA encounter.
5. **Service member Survey.** A brief, voluntary satisfaction survey was completed by Service members immediately after the PDHRA interview.

**See the Year 3 Report for copies of these measures; descriptions of the use, modification, and validation of previously published scales in these instruments; and summaries of the data collected.*

Existing Data

1. **PDHRA Data.** Including all PDHRAs completed during the study time period (3 months before and 3 months after the intervention) along with all pre-existing PDHRAs associated with the PDHRAs collected in the timeframe.
2. **PDHA data.** All pre-existing PDHAs associated with the PDHRAs collected in the timeframe described above:
3. **Health Care Encounter (HCE) Data.** All pre-existing HCE data associated with the PDHRAs collected in the timeframe above.

Final datasets of PDHRA, PDHA, and HCE data were received from AFHSC on 29-APR-13. (See Quarterly Reports for a description of circumstances that delayed VU's receipt of this data). Following the receipt of these data sets, all data were linked to create a master file to be used for subsequent analyses, with linkage being complete by 11-MAY-13.

Table 4.1 summarizes Year 4 analysis activities by research aim and methodology. More detailed information on data management and data sources can be found in Appendix B.

Table 4.1 Description of Detailed Research Aims, Data Sources, and Analyses

Research Aim	Data Set(s) Used	Analysis Conducted
1. Explore providers' perceptions of workshop acceptability and feasibility	Provider Workshop Evaluation	Descriptive analyses and quotes from open-ended comments.
2. Assess impact of workshop on Service members ratings of provider communication skills	Service member Survey, incorporating the use of several previously published validated scales*, which were subsequently validated for use in the military population by VU.	Analyses were conducted using hierarchical linear model regressions accounting for clustering by provider to estimate the differences by provider group (participated and did not participate in workshop) and time (pre- and post-workshop).
3. Determine efficacy of workshop on provider identification of Service members' psychosocial concerns	(a) Provider Post-PDHRA Survey Service member Survey	Creation of a scale to represent provider identification of Service member behavioral health concerns followed by Poisson loglinear regression to analyze differences by provider group (participated and did not participate in workshop) and time (pre- and post-workshop).
3. (cont.)	(b) PDHRA	Difference in Difference Analysis to compare pre- and post- workshop changes for the two groups of providers (participated and did not participate in workshop).

**A detailed description of these published scales along with a summary of VU modifications is included in the Year 3 Report.*

The results of these analyses were presented at the American Psychological Association Annual Meeting on 31-JUL-13, and in more detail at the FHP&R Psychological Health Forum on 19-SEP-13. Appendices C and D contain the results of VU's analyses to date in the form of presentation slides.

In Year 5, analysis activities are expected to include:

- Exploration of the impact of the training workshop on providers' self-reported confidence and self-efficacy relating to communication during PDHRA interviews.
- Continued exploration of workshop impact, building analytic models that incorporate PDHA and HCE data.
 - Identify covariates
 - Limit analyses of PDHRAs to those closest to the date of the workshop
 - Determine the best method to explore impact of the workshop on PDHRA provider documentation by Service member self-reported problems

Task 5. Expert Panel Meetings

The purpose of the Expert Panel meetings is to ensure that intervention development is fully informed by the needs and resources of all Service Branches and Components. Contributions from the Expert Panel helped shape training development during Years 2 and 3, but no Expert Panel meetings were held during Year 4. During Year 5, all Expert Panel Members will be invited to attend a presentation on project findings. (See Appendix E for a listing of Expert Panel members).

Task 6. Project Planning Meetings

The planning meetings outlined in Task 6 are intended to ensure that both the development of the intervention and the resolution of any problems that might arise could be dealt with in a collaborative fashion by VU and FHP&R. Following the conclusion of site visits, Year 4 teleconferences were scheduled on an as-needed basis, supplemented by frequent email communication. A table of all external meetings (project planning meetings, Expert Panel meetings, and other assorted meetings) is included as Appendix F. In addition to these meetings, the VU research team met internally at least once each week.

Task 7. Preparation of Final Reports

Project findings were presented to FHP&R's Psychological Health Forum on 19-Sept-13, and additionally presented at the American Psychological Association Annual Meeting on 31-JUL-13. (See Appendices C and D). During Year 5, we anticipate the preparation of several manuscripts for submission to peer-reviewed journals as well as submission of the final project report.

Purdue University Scope of Work (SOW) Tasks

Task 1. Analysis of merged Veteran's Health Administration (VHA) and DoD data

Purdue was unable to complete this task due to the lack of receipt of the VA data as planned. Therefore, VU requested a modification to the SOW that was formally submitted on 07-NOV-13 (see Appendix A for further details). In brief, the SOW modification requests that Purdue's SOW be considered complete using DoD active duty data only.

Task 2. Preparation of Final Reports

During Year 4, Purdue has prepared three manuscripts, which are in draft stage. The first is an overview of behavioral health symptoms and diagnoses from PDHA, PDHRA, and health care encounter data, encompassing PTSD, depression, and alcohol misuse issues. The second manuscript focuses on gender and race issues regarding PTSD symptoms and diagnoses. The third manuscript focuses on symptoms of traumatic brain injury (TBI) from PDHA, PDHRA, and health care encounter data.

During Year 5, these manuscripts will be finalized and presented to FHP&R and AFHSC for review per agreed upon guidelines, after which they will be submitted to peer-reviewed journals. Purdue will also participate in the preparation of the final report.

KEY RESEARCH ACCOMPLISHMENTS

- **Data Management and Analysis**
 - **Secondary Analysis (Previous evaluation dataset)**
 - Analyses of the previous evaluation dataset have been ongoing.
 - **Electronic Health Records Data (Current Study) and Data Collected During Site Visits**
 - Final data sets containing PDHRA, PDHA, and HCE data were received from AFHSC.
 - AFHSC and site visit data were cleaned and linked to create a final data set for analysis.
 - Hierarchical linear model regression analyses were used to assess the impact of the workshop on Service member ratings of provider communication skills. Analyses showed that Service members rated provider communication skills higher among workshop providers post-workshop compared to before, while no such change was observed for providers who did not attend the workshop. (See Appendices C and D for more detailed presentation of results).
 - A reliable scale to represent provider identification of Service member BH concerns was created from the Provider Post-PDHRA Survey.
 - Poisson loglinear regression was used to assess the impact of the workshop on provider identification of Service members' psychosocial concerns. Analysis showed that for Service members who reported BH concerns on VU's anonymous survey, providers who attended the workshop showed increase identification of BH concerns after the workshop, while no such effect was observed among non-workshop providers. (See Appendices C and D for more detailed presentation of results).
 - Difference in Difference analysis was used to examine the impact of the workshop on provider documentation of concerns and referrals on PDHRAs.

Analysis showed that documentation of concerns was increased among workshop providers, while medical referrals were decreased and Military One Source referrals were increased. (See Appendices C and D for more detailed presentation of results).

- **Literature Review.** Relevant literature review has been conducted by both VU and Purdue, which will improve our ability to meet the stated project aims.
- **Approvals.** All IRB approvals related to the study are in place, with continuing review approvals received on schedule.
- **Planning Meetings.** Project planning meetings were held as scheduled (See Appendix F)
- **Purdue Items.**
 - Drafted a manuscript that provides an overview of behavioral health symptoms and diagnoses from PDHA, PDHRA, and health care encounter data, encompassing PTSD, depression, and alcohol misuse issues.
 - Drafted a manuscript that focuses on gender and race issues regarding PTSD symptoms and diagnoses.
 - Drafted a manuscript that focuses on symptoms of traumatic brain injury (TBI) from PDHA, PDHRA, and health care encounter data.

REPORTABLE OUTCOMES

During Year 4, one paper has been presented at an academic conference, and a second paper has been presented to FHP&R's Psychological Health Forum. Both presentations focused on workshop outcomes, with the Psychological Health Forum presentation being an expanded version of the presentation given at the American Psychological Association's Annual Meeting. Presentation slides for these papers are included as Appendices C and D. Additional manuscripts for presentation and publication are in the drafting stages.

Douglas, S., Vides de Andrade, A.R. Boyd, S., Frazer, N., Fraine, M., Webb, L., Bickman, L. (July, 2013). *Communication Training for Health Care Providers to Improve Military Mental Health Screening*. Oral presentation to the American Psychological Association Annual Meeting, Honolulu, Hawaii.

Douglas, S., Vides de Andrade, A.R. Boyd, S., Frazer, N., Fraine, M., Webb, L., Bickman, L. (September, 2013). *Communication Training for Health Care Providers Improves Military Mental Health Screening*. Oral presentation to the Force Health Protection & Readiness Psychological Health Forum.

CONCLUSIONS

In Year 4, VU built upon the Year 3 analyses of workshop feasibility and acceptability by conducting analyses on workshop efficacy. Preliminary analyses indicate positive impact of the workshop: (a) rated as acceptable and feasible by participating providers; (b) increased providers' patient-centered communication skills and expected behaviors during PDHRA interview as rated by Service members; (c) increased providers' identification of BH concerns in context of PDHRA encounters where Service members anonymously reported BH concerns; and (d) affected PDHRA provider documentation, with more concerns and One Source referrals yet fewer medical referrals. During

Year 5, we will conduct further analysis relating to workshop efficacy and will prepare manuscripts based on our findings. We also intend to consult with the Expert Panel in the development of targeted recommendations based on this work.

REFERENCES

Note that all references included here refer to citations to be found in Appendix A rather than in the preceding body of the report.

- Aspegren K. (1999). BEME guide no.2: Teaching and learning communication skills in medicine--a review with quality grading of articles. *Medical Teacher*, 21(6), 563-570.
- Back, A. L., Arnold, R. M., Baile, W. F., Fryer-Edwards, K. A., Alexander, S. C., Barley, G. E., et al. (2007). Efficacy of Communication Skills Training for Giving Bad News and Discussing Transitions to Palliative Care. *Arch Intern Med*, 167(5), 453-460. doi: 10.1001/archinte.167.5.453
- Bickman L, Kelley SD, Leslie MW, Vides De Andrade AR, Hargraves RP, Lambert WE, Breda CS, Tempesti T, Demoret DL, Lapare CE, Tenore B (2009). Program Evaluation of Post-Deployment Health Assessment (PDHA) and Reassessment (PDHRA) Processes (2009). Available online at the Defense Technical Information Center (DTIC) (<http://handle.dtic.mil/100.2/ADA528063>).
- Brown L.D., de Negri B, Hernandez O., Dominguez L., Sanchack J.H., & Roter D. (2000). An evaluation of the impact of training Honduran health care providers in interpersonal communication. *International Journal for Quality in Health Care*, 12(6), 495-501.
- Cheraghi-Sohi, S., & Bower, P. (2008). Can the feedback of patient assessments, brief training, or their combination, improve the interpersonal skills of primary care physicians? A systematic review. *Bmc Health Services Research*, 8, 10. doi: 17910.1186/1472-6963-8-179
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, N.J.: L. Erlbaum Associates.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.
- Fallowfield, L., Jenkins, V., Farewell, V., & Solis-Trapala, I. Enduring impact of communication skills training: results of a 12-month follow-up. *Br J Cancer*, 89(8), 1445-1449.
- Forsetlund L, Bjørndal A, Rashidian A, Jamtvedt G, O'Brien MA, Wolf F, Davis D, Odgaard-Jensen J, Oxman AD. (2009). Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 2. Art. No.: CD003030. DOI: 10.1002/14651858.CD003030.pub2.
- Frostholm, L., Fink, P., Oernboel, E., Christensen, K. S., Toft, T., Olesen, F., et al. (2005). The Uncertain Consultation and Patient Satisfaction: The Impact of Patients' Illness Perceptions and a Randomized Controlled Trial on the Training of Physicians' Communication Skills. *Psychosom Med*, 67(6), 897-905. doi: 10.1097/01.psy.0000188403.94327.5b
- Helitzer, D. L., LaNoue, M., Wilson, B., de Hernandez, B. U., Warner, T., & Roter, D. A (2011). Randomized controlled trial of communication training with primary care providers to improve patient-centeredness and health risk communication. *Patient Education and Counseling*, 82(1), 21-29.
- Hintze, J. L. (2005). *PASS User's Guide: Pass 2005 Power Analysis and Sample Size for Windows. 2005 Version*. Kaysville Utah: NCSS.

- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, 351(1), 13-22.
- Joos S.K., Hickman D.H., Gordon G.H., & Baker L.H. (1996). Effects of a physician communication intervention on patient care outcomes. *Journal of General Internal Medicine*, 11(3), 147-155.
- Kim Y.M., Figueroa M.E., Martin A., Silva R., Acosta S.F., Hurtado M., Richardson P., & Kols A. (2002). Impact of supervision and self-assessment on doctor-patient communication in rural Mexico. *International Journal for Quality in Health Care*, 14(5), 359-67.
- Langewitz, W. A., Eich, P., Kiss, A., & Wossmer, B. (1998). Improving communication skills--a randomized controlled behaviorally oriented intervention study for residents in internal medicine. *Psychosom Med*, 60(3), 268-276.
- Levinson W. & Roter D. (1993). The effects of two continuing medical education programs on communication skills of practicing primary care physicians. *Journal of General Internal Medicine*, 8(6), 318-24.
- Maguire, P., & Pitceathly, C. (2002). Key communication skills and how to acquire them. (Clinical review). *British Medical Journal*, 325(7366), 697(694).
- Merckaert, Libert, Razavi, Darius (2005). Communication skills training in cancer care: where are we and where are we going? *Current Opinion in Oncology*. 17(4):319-330.
- Rao, J. K., Anderson, L. A., Inui, T. S., & Frankel, R. M. (2007). Communication interventions make a difference in conversations between physicians and patients - A systematic review of the evidence. *Medical Care*, 45(4), 340-349.
- Raudenbush, S. W., & Liu, X. (2000). Statistical power and optimal design for multisite randomized trials. *Psychological Methods*, 5(2), 199-213.
- Roter, D. L., Larson, S., Shinitzky, H., Chernoff, R., Serwint, J. R., Adamo, G., et al. (2004). Use of an innovative video feedback technique to enhance communication skills training. *Medical Education*, 38(2), 145-157. doi: 10.1046/j.1365-2923.2004.01754.x
- Roter, D. L., Hall, J. A., Kern, D. E., Barker, L. R., Cole, K. A., & Roca, R. P. (1995). Improving Physicians' Interviewing Skills and Reducing Patients' Emotional Distress: A Randomized Clinical Trial. *Arch Intern Med*, 155(17), 1877-1884. doi: 10.1001/archinte.1995.00430170071009
- Wissow, L. S., Gadowski, A., Roter, D., Larson, S., Brown, J., Zachary, C., et al. (2008). Improving child and parent mental health in primary care: a cluster-randomized trial of communication skills training. (Report). *Pediatrics*, 121(2), 266(210).

Appendix A: Revised Scope of Work

(With Original Proposal, 2011, and 2012 Modifications Appended)

**IMPROVING DEPLOYMENT-RELATED PRIMARY CARE PROVIDER ASSESSMENTS OF PTSD AND
OTHER MENTAL HEALTH CONDITIONS**

Award #: W81XWH-09-2-0172

Dr. Susan D. Kelley & Dr. Len Bickman (Vanderbilt University)

Dr. Sarah Mustillo (Purdue University)

LCDR Nicole Frazer & Dr. Mark Paris (FHP&R)

MODIFIED SCOPE OF WORK FOR REVIEW AND APPROVAL

07-NOV-2013

VII. STATEMENT OF WORK

A. Vanderbilt University Statement of Work

Extramural Partner Site (no animal or human use at this site)

Susan Douglas Kelley, Ph.D. (PI) and Leonard Bickman, Ph.D. (Co-PI)

Center for Evaluation and Program Improvement, Vanderbilt University

Study Sites

The training and feedback intervention will be tested in four to six study sites. The number of sites will depend on staffing and PDHRA throughput. Site recruitment will be limited to Army Active Duty. Specific sites will be determined in collaboration with the Expert Panel in the first two months of the project. An estimated 39 providers in total throughout the four to six study sites will be recruited to participate in the study.

Overall Project Timeline

Proposed two-year project period from 01 AUGUST 2009 to 31 JULY 2011.

	YEAR ONE												YEAR TWO											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
IRB protocol development/submission																								
Aim 1. PDHRA focus groups																								
- Development																								
- Administration																								
- Analysis and preliminary report																								
Aim 1. PDHRA secondary analysis																								
- Data request																								
- Analysis																								
- Preliminary report																								
Aim 2. Training & Feedback Intervention Effectiveness Study																								
- Development; recruitment																								
- Pre- and post-audiotape																								

[illegible]

Task 1. Timing of Approvals and IRB (Year 1, months 1-11)

If required for this grant, VU and FHP&R will build on excellent working relationships based on our current research project. Appropriate Army IRBs may include Regional Medical Center (RMC) and/or installation IRBs depending on the study sites recruited.

1a. Multi-project Institutional Authorization Agreement (IAA) submitted to TMA Exempt Determination Official to establish the VU IRB as the IRB of record (Year 1, months 1-2)

1b. PHDRA secondary analysis protocol (Year 1, months 1-4)

- Submitted to VU IRB, estimated review time for non-human subjects protocol (Year 1, month 1)
- Submitted to TMA Exempt Determination Official, estimated review time (Year 1, months 3-4)

1c. PDHRA focus group protocol (Year 1, months 1-4)

- Submitted to VU IRB, estimated review time for exempt protocol (Year 1, months 1-2)
- Submitted to appropriate Army IRBs and estimated review time (Year 1, months 3-4)

1d. Training and feedback intervention study protocol (Year 1, months 3-10)

- Submitted to VU IRB, estimated review time for expedited protocol (Year 1, months 3-4)
- Submitted to appropriate Army IRBs, estimated review time (Year 1, months 5-11). Note that final training materials will be submitted for review in months 10-11.

~~Task 2. (Aim1) PDHRA focus groups (Year 1, months 1-2, 5-9)~~

~~2a. Recruitment of four to six study sites (Year 1, months 1-2)~~

~~2b. Development of focus group protocols (Year 1, month 1)~~

~~2c. Administration of 2-hour focus groups conducted at each study site (Year 1, months 5-7)~~

2d. Professional transcription of focus group audiotapes ongoing as each completed (Year 1, months 5-7)

~~2e. Qualitative analysis will be ongoing as each focus group completed with aggregation of findings after all completed (Year 1, months 5-9)~~

~~2f. Production of preliminary reports and briefings (Year 1, months 8-9).~~

Modified per previous approvals

Task 3. (Aim 1) PDHRA secondary analysis (Year 1, months 4-9)

3a. Data requests to appropriate information technology officer at each Service for provider and MTF identifiers for PDHRAs completed between 01/01/06 to 05/31/09 (Year 1, month 4)

3b. Linking file created by TMA to provide de-identified dataset to VU containing non-identifying SM identifier and provider/MTF identifiers (Year 1, month 4)

3c. Data management and analysis (Year 1, months 5-7). Abbreviated analytic timeframe estimated because we will be adding this dataset to existing clean datasets with much of the analytic programming developed.

3d. Production of preliminary reports and briefings (Year 1, months 8-9).

Task 4. (Aim 2) Training and feedback intervention effectiveness study (Year 1, months 1-9; Year 2, months 1-11)

4a. Recruitment of four to six study sites (Year 1, months 1-2)

4b. Development of training materials (Year 1, months 1-9)

~~4c. Randomization of 39 providers across four to six study sites (Year 1, month 12)~~

~~4d. Collection of pre-training audiotapes from 39 providers, consisting of one randomly selected hour of PDHRA interviews (Year 1, month 12) Modified per previous approvals~~

4e. Training and feedback intervention (Year 2, months 1-4)

- Initial training eight-hour workshop for providers in the two intervention conditions (Year 2, month 1)
- Feedback through ongoing peer learning in treatment team format conducted at relevant study sites for 30-45 minutes on a weekly or bi-weekly schedule (TBD) (Year 2, months 2-4)

4f. Measurement of implementation fidelity and quality (Year 2, months 1-4)

- Collection of initial training workshop attendance records, administration of pre- and post-workshop evaluations completed by attending providers, and audiotaping of simulated interviews conducted by providers during initial workshop (Year 2, month 1)
- Collection of attendance records at ongoing treatment team sessions (Year 2, months 2-4)
- Administration of post-training evaluation survey to participating providers (Year 2, month 4)

4g. Measurement of intervention outcomes (Year 2, months 1-4, 7)

- Collection of audiotapes from 39 providers, consisting of one randomly selected hour of PDHRA interviews, one each month of the study period (Year 2, months 1-4)
- Administration of SM satisfaction survey for each SM participating in a PDHRA interview with participating providers during the study period (Year 2, months 1-4)
- Data requests to Army information technology officer at each installation for provider and MTF identifiers for PDHRAs completed by participating providers during study period (Year 2, month 7)
- Data request to TMA for (1) de-identified PDHRAs completed during study period for participating providers during study period, and (2) de-identified health care utilization records for SMs interviewed by participating providers for eight weeks post-PDHRA. Linking file will be created by TMA to provide de-identified dataset to VU containing non-identifying SM identifier and provider/MTF identifiers (Year 2, month 7)

4h. Data management and analysis (Year 2, months 5-11)

Task 5. Expert Panel meetings (Year 1, months 2, 9; Year 2, months 2, 11)

The development of the intervention will be guided by an expert panel composed of SMs in leadership positions related to the PDHRA process from all Services.

5a. Four-hour in-person meeting in Washington, DC (Year 1, month 1; Year 2, month 11)

5b. Two-hour teleconference calls (Year 1, month 9; Year 2, month 2)

Task 6. Project planning meetings (Years 1 and 2, all months)

6a. Weekly one-hour teleconference calls

6b. Three one-day intensive project meetings to be held at FHP&R in Washington, DC (Year 1, month 1, 5, 10; Year 2, month 2, 6, 11)

Task 7. Preparation of final reports (Year 2, months 11-12)

Final reports and briefings will be prepared according to any guidelines or requirements as set forth by the granting agency.

B. Purdue University Statement of Work

Year 1

During the first few months of the first year (09/09-11/09), the majority of the work will be conducted by personnel at the Roudebush VA Medical Center in Indianapolis and at the Department of Defense in Washington, DC. The PI (Mustillo) will establish data collection procedures, coordinate data collection between those two sites, troubleshoot, and assist with technical consultation. During the fall of 2009, she will make trips to Indianapolis and Washington DC as necessary to consult with project personnel regarding data and data collection. In 12/09, Mustillo will obtain the data from ~~both the VA and~~* the DoD and create a dataset for the project. During the spring (01/10-05/10) and summer (06/10) Mustillo will clean, recode, merge, and reshape data and will begin data analyses. Mustillo will also supervise a research assistant to help with these tasks.

Year 2

In Year 2, Mustillo will continue to conduct data analyses in accordance with the specific aims of the project, with the help of a graduate research assistant (08/10-12/10). Additionally, Mustillo and the research assistant will write a report of the finding for the Department of Defense as well as manuscripts for publication in professional journals (01/11-07/11). Mustillo will travel to Washington DC to consult with DoD personnel, present key findings, and receive input on analyses as necessary. Mustillo also will present at least one manuscript at a research conference.

*Added language

1. Suggested SOW change: The data sample for Purdue University's examination of the predictors of positive PTSD screens in PDHA and PDHRA based on the explanatory variables specified in the original proposal has been modified from active duty and VA data to active duty data only.

2. Rationale: As of July, 2012 Sarah Mustillo at Purdue had successfully completed all aspects of the sub-award scope of work with non-VA data related to examining the predictors of positive PTSD screens in PDHA and PDHRA based on the explanatory variables specified in the original proposal. In addition, Purdue has examined subsequent PTSD diagnoses during inpatient and outpatient health care encounters. In September of 2012, Dr. Mustillo presented results from one set of analyses to the FHP&R Psychological Health Forum. Dr. Mustillo also has three articles in final stages, all of which will be submitted to FHP&R and AFHSC for review prior to submitting them for consideration in peer-reviewed journals in Year 5.

According to information that Dr. Mustillo has received from the VA, Purdue will be unable to repeat these analyses with the VA dataset as originally proposed. Purdue has passed privacy approvals at both the local and national levels with no problems. While there is a completed Privacy Review within the DART, Purdue was informed that overall review cannot be resolved because it was determined there was no legal authority for the PI to send the data to either DOD or Purdue University under the Privacy Act of 1974. The subjects of the research are not signing either a consent or authorization and there is no routine use under 34 VA 12. The latter is the applicable SOR since the research data is being collected to send it to the other entities. The waiver of HIPAA authorization does not address the requirement in the Privacy Act, as there is no provision in the Act for a waiver process.

These problems have been duly reported in quarterly reports to USAMRMC-MORP and in communication with our contacts at FHP&R. Despite numerous attempts to resolve these issues together with our cooperative partners, there appears to be no resolution to the requirement by the VA for informed consent by individual service members because the data being requested consist of pre-existing records.

Therefore, as the PI of the cooperative agreement, VU proposes we modify Purdue's SOW to reflect the successful work already done with the non-VA data. This is in the best interests of the overall project to allow the remaining efforts in the 3rd no-cost extension year to be focused on the primary research aims. There are no changes to the budget.

ORIGINAL PROPOSAL

**IMPROVING DEPLOYMENT - RELATED PRIMARY CARE PROVIDER
ASSESSMENTS OF PTSD AND MENTAL HEALTH CONDITIONS**

PROPOSAL #: CWS_08_R3_259

**IMPROVING DEPLOYMENT - RELATED PRIMARY CARE PROVIDER
ASSESSMENTS OF PTSD AND MENTAL HEALTH CONDITIONS**

SUSAN DOUGLAS KELLEY, Ph.D. (PI) and LEONARD BICKMAN, Ph.D. (Co-PI)

I. PROJECT SUMMARY/ABSTRACT

This proposal addresses the need for research on service delivery approaches for Service Members (SMs) with combat-related physical or psychiatric symptoms, including Posttraumatic Stress Disorder and/or post-concussive symptoms. As a primary care encounter, the post deployment health reassessment (PDHRA) process is critical to force health protection efforts. The proposed project will develop and test the effectiveness of a targeted training and feedback intervention designed to help providers increase SM reports of behavioral health concerns and SM acceptance of a referral for further assessment. The project builds on previous collaboration between Vanderbilt University and Force Health Protection and Readiness and will be applicable to all Service Branches and Components. We propose two aims. (Aim 1) Development of PDHRA-specific clinical guidelines and training materials through collaboration with key national leaders and installation-level stakeholders involved in the PDHRA process, and through a secondary analysis of PDHRA data linked by provider. (Aim 2) Test of intervention effectiveness at four to six sites with 39 primary care providers who conduct PDHRAs. Providers will be randomly assigned to one of two interventions (training and ongoing feedback or training only) or to typical training (control group). Outcomes include implementation fidelity and quality, content analysis of communication style from interview audiotapes, secondary analysis of the PDHRA form and SM health care utilization, and SM satisfaction surveys. Data will be analyzed using a longitudinal repeated measure slope-as-outcome model. A secondary analysis of PDHRA data will also be conducted to identify risk factors in the development of Posttraumatic Stress Disorder.

II. PROJECT NARRATIVE

A. Background & Literature Review

Post Deployment Health Assessment (PDHA) and Re-Assessment (PDHRA)

The deployment health assessment continuum includes a primary care provider interview, brief written assessment, and health education to the deployed force at critical time points in the deployment cycle. The health assessment process is a therapeutic encounter as well as a health education opportunity that is critical to force health protection efforts. SMs complete the post deployment health assessment (PDHA) at the time of redeployment and the post deployment health reassessment (PDHRA) about 90-180 days later. Both include completion of a self-report form and a provider interview. The purpose of the provider interview is to review SM responses to the self-report questions, discuss any concerns or problems, provide education and clinical health risk communication about common deployment health concerns, and to make referrals for further evaluation as needed.

As a primary care encounter, the PDHRA process is a vital component of the military health care system's attempt to care for SMs physical and behavioral health problems following deployment. It is important for primary care providers to communicate effectively with SMs, particularly with regard to behavioral health and mild traumatic brain injury (mTBI) concerns. The PDHRA includes a provider interview intended to motivate the SM to disclose problems and agree to a referral. At present the

PDHRA providers operate with little systematic information or feedback on either the interview process or the outcome of a referral.

Utility of Screening for Behavioral Health Disorders

The utility of any health risk appraisal system depends on the accuracy of the relevant screening tools and procedures. The PDHRA is considered a multi-gate screening program. The first gate, the SM self-report, is a type of threshold-based screening, which typically consists of short questionnaires completed by individuals intended to determine if they meet a pre-defined threshold of risk in need of further evaluation. The second gate is the clinical interview, where the health care provider reviews the results in conjunction with an interview to determine need for further evaluation through referral. Accuracy is typically defined as the validity of the screening tools and procedures as they appropriately identify individuals who are or are not at risk through statistical techniques such as calculation of sensitivity and specificity (discussed further as part of Aim 1 in section B.3 below). For the PDHRA process, accuracy can be influenced by SM attitudes toward reporting behavioral health problems.

Recent research has demonstrated that a majority (up to 60%) of military personnel who screen positive for mental health problems do not seek any care (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004), a sobering result similar to that found in the general population (Willis, Willis, Male, Henderson & Manderscheid, 1998). Factors that influence attitudes toward help seeking include stigma, anticipated utility of treatment, propensity to self-disclose, and social support (Ajzen & Fishbein, 1980; Koenan, Goodwin, Struening, Hellman, & Guardino, 2003; Salzer & Bickman, 1999; Vogel & Wester, 2003; Vogel, Wade, Wester, Larson, & Hackler, 2007). Related barriers to help seeking behavior, often labeled organizational barriers, that have been identified by military personnel include: difficulty in getting time off from work, not having adequate transportation, not knowing where to go, difficulty scheduling appointments, distrust in the mental health system, or financial strain (Chappelle & Lumley, 2006; Hoge et al., 2004).

Outreach and education to reduce these perceived barriers has been suggested as a necessary component of any effective mental health care system (e.g., Kelly & Jorm, 2007). Such education may include not only 'destigmatizing messages' and practical information on how to seek help, but also information on the effectiveness of available treatments. It has been suggested that greater confidence in effective treatment could reduce the stigma associated with mental health disorders (Corrigan, 2004; Meltzer, Bebbington, Brugha, Farrell, Jenkins, & Lewis, 2000; Sammons, 2005). A strength of the PDHRA process is the inclusion of the provider interview, which may serve as a key factor in the provision of such education to decrease stigma and increase understanding of help-seeking for behavioral health problems.

Clinical Interview as Part of Accurate Health Risk Appraisal

The PDHRA process as implemented typically relies on clinical expertise to guide the health risk appraisal process. The benefits of a clinical screening system are the depth and quality of assessment given. Clinical screening techniques involve the use of very direct measures of behavior such as interview, physical exam, or observation. Moreover, direct measurement often affords health care providers the opportunity to rule out false-positives or rule in false-negatives that may be due to unrelated factors such as stigma, reading ability, English language proficiency, etc. Health care providers also may bring to bear advanced knowledge on the interpretation of the "clinical significance" of assessment results in light of contextual variables. However, very little formal evaluation has been carried out to assess the relative accuracy of specific clinical screening techniques such as the clinical interview alone in predicting future risk.. In general, health services research suggests that health care providers may be

able to identify individuals who are currently high risk, but they are less able to identify those who are going to become high risk in the future (Dudley, 1996). This is particularly relevant to the PDHRA process, given that the purpose of the appraisal is to identify *need for further evaluation* rather than diagnosis.

Ideally, all variation in care would result from differences in clinical features, patient preferences, and available resources (Eddy, 1984). In actual practice, clinical decision making does not occur in a consistent manner due to error arising from several factors. Providers vary in their interview style and fact-finding techniques, which can have a significant impact on the nature of information elicited, and subsequent decisions (Cox, Holbrook, & Rutter, 1981; Cox, Rutter, & Holbrook, 1981; Graham & Rutter, 1968; Hopkinson, Cox, & Rutter, 1981; Rutter & Cox, 1981; Rutter, Cox, Egert, Holbrook, & Everitt, 1981; Rutter & Graham, 1968).

Variability in clinical findings can also result from the experience and knowledge available to the health care provider. The initial hypotheses, and often the resulting interpretation of presenting symptoms, may be influenced by such factors as when and where the health care provider was trained and the amount and quality of the individual's clinical experience. Recent research has suggested that among expert health care providers, the decision-making process is typically one of pattern recognition or direct automatic retrieval of facts relevant to interpreting the meaning of symptoms presented by the individual being assessed (Elstein & Schwarz, 2002). Studies of physician behavior conducted by Patel, Arocha, Diermeier, How, & Mottur-Pilson (2001) have demonstrated that experts are better able to organize information into manageable and meaningful "chunks", are less likely to attend to irrelevant information, and more likely to generate logical hypotheses based on the data presented (Patel & Groen, 1991). Because experts make greater use of clinical "schemas" or prototypes of typical cases, they are able to more efficiently and effectively integrate relevant sources of information during the interview and decision-making process (Patel et al. 2001).

Both idiosyncratic and common cognitive errors in social information processing are possible sources of bias in clinical interpretation and decision making. For example, health care providers may hold idiosyncratic beliefs or assumptions based on their observed behaviors and characteristics (Van Ryn, 2002). Van Ryn and Burke (2000) found that patient race and socio-economic status (SES) were associated with several health care provider perceptions regarding intelligence, personality, risk behaviors, and compliance with medical advice. Caucasians were about twice as likely as African Americans to be rated as at no risk for substance use and noncompliance. Patients in the lowest SES category were twice as likely to be rated as irresponsible and irrational compared with patients in the middle and upper SES categories (Van Ryn & Burke, 2000). Health care providers holding these beliefs may feel that a person is less deserving of treatment based on certain social or behavioral characteristics (Van Ryn, 2002). In turn, perceived stereotyping by health care providers may affect patient attitudes and perceptions and interactions between the patient and health care provider (U.S. Department of Health and Human Services [USDHHS], 2008; Van Ryn, 2002).

Although the decisions of some health care providers may be influenced by assumptions related to socio-cultural background of patients interviewed, all health care providers are vulnerable to a set of predictable set of cognitive errors, biases, and heuristics. These errors are due in large part to the cognitive demands placed on the health care provider during the decision-making process during which he or she must apply "heuristics" or cognitive shortcuts to make quick sense of the large amount of information they are presented with. Meehl (1954) was the first to make a distinction between clinical and actuarial (also known as statistical, mechanical, or algorithmic) decision-making from an information

processing perspective. In this context, clinical decision making is defined as the internal process of combining information in order to make a treatment decision, whereas actuarial decision making is the process of making conclusions on the basis of established relationships between the data and condition of interest (Dawes, Faust, & Meehl, 1989).

Research over the last 70 years has found that actuarial decision making is more accurate and less variable than clinical decision making in most cases. In a review of 617 comparisons in 136 studies published between 1920 and 1994, Grove, Zald, Lewbow, Snitz, and Nelson (2000) found only eight studies in which clinical decision making surpassed the accuracy of actuarial decision making. Several factors have been cited as possible explanations for the superiority of actuarial over clinical decision making. First and foremost, the human brain is not efficient at noticing, selecting, categorizing, retaining, retrieving, manipulating, and appropriately applying information for the purpose of making inferences (Grove & Meehl, 1996). As a result, clinical decision making is prone to fluctuations in judgment due to the influence of cognitive errors, application of heuristics, and biases (Dawes et al., 1989).

Findings from Collaborative VU-FHP&R Project

As part of their current contract with DoD (see section B.5 below for further detail), VU has conducted preliminary statistical analysis of a de-identified secondary dataset representing available PDHRA records for all SMs between the dates of 01/01/06 and 04/30/08 (N=595,191). A subset of 359,387 records were used for analysis representing SMs deployed to OIF/OEF once during the time period who were in reserve or active components of the Army, Navy, Air Force, or Marine Corps at the time of the PDHRA. A main focus of the secondary analysis was to examine the relationship between a SM's self report and their clinician's report of concerns and offer of referrals. Referral was defined as any referral made to medical (i.e., primary care, specialty care) or non-medical care (i.e., case manager, family support).

The correlation between SM self-report of problems and provider-report of concerns was moderate ($r = 0.64$). This suggests that 41% of the variance in provider concern count comes from the SM's self-report of problems, with 59% from other sources. While one source of the difference is unreliability, another might be "value added" by the provider (observing problems that the SM did not self-report or identifying previously reported problems as no longer of concern). This indicates the necessity of understanding how the clinical decision-making process contributes to PDHRA outcomes.

Other analyses suggest a need to understand how providers view different types of SM self-reported symptoms. For example, we have found the relationship between the probability of any referral and the number of self-reported symptoms varies by the type of symptoms. For physical health symptoms, the greater the number of symptoms, the greater the likelihood of referral. This is not the case with self-reported exposure concerns. SMs could endorse 23 separate persistent major concerns related to the health effects of various exposures or encounters during deployment. These ranged from 'DEET insect repellent applied to skin' to 'depleted uranium.' About 50% of SMs received any referral with two concerns endorsed, but there was a relatively low cumulative probability of referral for additional exposure concerns reported. For behavioral health problems (symptoms related to PTSD, depression, alcohol problems, and relationship conflicts) almost one-fifth of SMs did not receive a referral even though all questions (9) were endorsed. These findings, while preliminary, indicate that there is a clear need to better understand how the clinical decision-making process contributes to PDHRA outcomes.

Need for Training and Feedback Interventions

The judgment of even the most experienced health care provider can be compromised by incomplete or inaccurate information on the causes, natural course, progression, and most reliable predictors of risk across the life-span. Although access to up-to-date information and professional development for less experienced health care providers may appear to be a logical response for dealing with variation in levels of training and experience, the development of expertise in clinical assessment is not necessarily linear. For example, Patel et al. (2001) made an important distinction between the performance of experts (experts working on tasks relevant to their primary domain of expertise), sub-experts (experts working outside of their primary domain of expertise), intermediates (individuals with skills at an intermediate-stage between expert and novice such as intern or resident health care providers), and novices (individuals with limited experience and content knowledge). Interestingly, research has demonstrated that intermediates may perform more poorly than novices on specific tasks such as the recall of patient data (Patel & Groen, 1991), explanation of clinical problems (Patel, Groen, & Scott, 1988) and generation of well-formed diagnostic hypotheses (Arocha, Patel, & Patel, 1993). This unexpected “intermediate effect” has been explained as a consequence of the natural ebb-and flow of human learning and development. Specifically, it has been hypothesized that the development of expertise involves a continuous process of learning, re-learning, and application of new knowledge during which there are periods of apparent decreases in mastery and performance among intermediates as new information is learned and integrated (Patel et al., 2001). As such, the potential value of additional training, feedback and professional development may depend on the health care provider’s particular stage of development with regard to his/her level of expertise in their particular work context.

Further, a health care provider’s clinical experience does not come from a truly representative sample of the population. As a result, his or her perception of the relationship between variables is not necessarily representative (Dawes et al., 1989). Consequentially, health care providers routinely ignore base rates when estimating the probability of a given diagnosis. Instead, they may consider each hypothetical diagnosis equally likely because they are looking at how close a particular case is to a diagnostic category or previously seen cases (also known as the representativeness heuristic; Elstein & Schwarz, 2002). There is also a tendency to overestimate the frequency of unusual and easily recalled events. Hence, health care providers tend to overemphasize rare conditions when making clinical judgments (also known as the availability heuristic; Elstein & Schwarz, 2002).

In addition, over the course of their training and clinical practice, many health care providers may develop inaccurate beliefs about the association between risk factors and observed symptoms (Dawes et al., 1989). Unfortunately, these incorrect assumptions may be used as a frame to guide the clinical fact-finding process itself. As a result of the confirmation bias, health care providers may be more likely to attend to information that supports this initial hypothesis and reject or downplay evidence that refutes it (Dawes et al., 1989). Error resulting from the interplay of these processes is compounded by the fact that past predictions are generally recalled as being more accurate than they were (also known as hindsight-bias), thus inflating the health care provider’s assessment of his or her actual decision making ability (Dawes et al., 1989) and decreasing the likelihood they will regularly pursue alternate clinical hypotheses for presenting symptoms. In addition to these common cognitive errors, the personal regret a given health care provider anticipates feeling if he/she rendered an incorrect diagnosis or the patient was not provided appropriate care may also influence clinical decision-making and referral practices in rather unpredictable ways. Given the robustness of previous research on the identification of problems in clinical decision making and its relationship to the improving the PDHRA interview process it should be evident that research on how to improve the PDHRA should be a high priority.

B. Research Design & Methods

B.1 General Overview

Specific Aims

This proposal is written in response to the Medical Research and Materiel Command (MRMC) intramural Department of Defense (DoD) FY2008 War Supplemental Intramural Announcement. The proposal specifically addresses the need for research on the promotion of treatment interventions, prevention strategies, and service delivery approaches targeting Service members (SMs) with combat-related Posttraumatic Stress Disorder (PTSD) and/or psychiatric and related physical and/or post-concussive conditions.

More specifically, it addresses three areas of special consideration when developing evidence-based treatment interventions for combat-related PTSD and co-occurring problems:

- Approaches in primary care to reduce physical and psychiatric co-morbidity associated with PTSD *through increased effectiveness of early screening and identification leading to increased SM access to and use of appropriate care*
- Evidence-based strategies to enhance engagement, retention, compliance, and return to duty performance of SMs *specifically targeting engagement in the assessment process through evidence-based strategies to enhance provider's interview and clinical communication practices during deployment related assessments. SM engagement includes both elicitation of reports of behavioral health concerns and motivation to accept referrals for further behavioral health evaluation and/or treatment*
- Clinical competencies and treatment fidelity guidelines *through the development and testing of targeted training and ongoing feedback related to the primary care provider's interview and clinical communication practices during deployment related assessments*

The primary focus of the proposed project is to determine the impact of a targeted training and feedback intervention related to the primary care provider's interview and clinical communication practices during deployment related assessments on eliciting SM reports of behavioral health concerns and in motivating SM acceptance of a referral for further behavioral health evaluation and/or treatment. The development of the intervention is informed by substantial previous collaboration by Vanderbilt University (VU) and FHP&R that identifies clinician communication patterns and behaviors that contribute to SM problem-reporting and extensive analysis of a large PDHRA dataset. The intervention development will be applicable to all Service Branches and Components. Specific aims include:

Aim 1: Determine key elements of and current impact of training programs for deployment related assessments. The focus will be on guidance related to eliciting candid reporting of behavioral health concerns, identification of behavioral health concerns that warrant referral and motivating the SM to accept a referral for further evaluation and/or treatment for behavioral health conditions and concerns. This aim will be accomplished through (a) Expert Panel review of results from current 2007-2009 VU-FHP&R collaboration to determine criteria for clinical competencies; (b), process-action research techniques, including focus groups with key stakeholders involved in the PDHRA process, to assist in identifying key elements for training interventions relevant to content, format, and implementation and, (c) secondary analysis of PDHRA data from a specifically developed database that includes provider and MTF identifiers will allow identification of variability in concerns and referrals attributed to the provider, over and above SM self-reported problems. The results of the secondary analysis will complement the results of a 2007-2009 contract that includes several methods to determine factors that influence appropriateness of referral through the PDHRA. This phase of research will result in the

development of a training and feedback intervention intended to improve the primary care provider's interview and clinical communication practices during deployment related assessments. This aim includes data from all Service Branches and Components. In addition, the Expert Panel will be comprised of members from the PDHRA Working Group, which consists of leaders from all services.

Aim 2: Evaluate the effectiveness of a targeted training and feedback program on primary care provider's interview and clinical communication patterns related to SM behavioral health condition identification and referrals. Based on the findings from Aim 1, a feedback and training intervention for providers will be tested with a group of 39 primary care providers who conduct deployment-related assessments in four to six sites. Providers will be randomly assigned to one of two interventions (training and ongoing feedback or training only) or to whatever typical training they receive. This latter arm will serve as the control group. Implementation will be measured through training attendance records, evaluations completed by the providers, and review of taped simulated interviews as a formative assessment. Outcome measurement will include pre-and post-training content analysis of communication style from audiotapes and an analysis of secondary data (including electronic records for PDHRA and health care utilization). The latter will include an analysis of concordance between SM self-reported problems and provider-reported concerns; referral characteristics; SM acceptance of referral; concordance between PDHRA referral characteristics and subsequent health care utilization. In addition data will be obtained from a brief post-interview satisfaction survey completed by the SM.

B.2 Subject Recruitment

The primary care providers are considered to be the subjects for the proposed project. The feedback and training intervention is not intended to affect SMs directly, but rather indirectly by influencing clinician behavior change through training and feedback on deployment-related assessments. Due to the layered nature of the project design, participants and recruitment methods are discussed by aim and purpose. If funded, the PI will ensure that all study procedures and tools are reviewed by the appropriate institutional review boards.

Aim 1: PDHRA Focus Groups

A group of six to eight staff associated with the PDHRA process at each of the four to six study sites will be invited to participate in a 2 hour focus group for purposes of identifying key elements for a feedback and training intervention relevant to content, format, and implementation. Targeted participants will include primary care providers, program managers, case/referral managers, commanders/unit leaders, and SMs who have recently been through the PDHRA process. FHP&R key personnel will identify and approach potential participants. Since no client-level data will be discussed and all data collected focus on formative feedback of intervention tools and procedures, it is anticipated that this sub-study will be exempt from IRB requirements. To facilitate ease of participation, the project team will travel to each of the sites. Food and beverages will be provided at each location.

Aim 1: Secondary Analysis

The data to be analyzed in the secondary analysis will consist of existing medical health records related to the PDHRA process (DD Form 2900) and subsequent health care utilization following the PDHRA. Provider and MTF identification will be provided by individual Service medical record systems (e.g., AHLTA). Prior to receipt by VU, all SM identifying information will be removed. Since no identifying information is involved related to SMs, it is anticipated that sub-studies will be considered non-human subjects.

Aim 2: Intervention Study

The feedback and training intervention will be tested in four to six project sites, with a total of 39 providers needed to provide adequate statistical power for the study. The number of sites will depend on staffing and PDHRA throughput. Site recruitment will be limited to Army Active Duty to decrease the potential influence of cross-service differences in medical facilities and SM deployment patterns. Installations will be approached and recruited by the project team in collaboration with relevant individuals from the Expert Panel. Once the sites are determined, all providers from each site will be given a description of the study before being asked to volunteer. The description will include an overview of the study purpose, time commitment and schedule of activities, and measurement procedures. As part of participation in the study, training attendance and evaluations of training will be administered to providers. Simulated interviews conducted during the initial training workshop as formative assessments will be audio taped and later content coded. All participating providers will be asked to audiotape a randomly selected hour of interviews prior to the initial training, and four more randomly selected hours over the course of the study (one per month). Providers participating in the training and feedback experimental condition will also be asked to use taped interviews throughout the study as part of ongoing training and feedback. Audio recorders will be shipped directly to providers for each taping, then shipped by them to FHP&R in SASE envelopes. All audiotapes will have the SM de-identified by FHP&R prior to receipt at VU. Informed consent procedures will be used for audio recording of individual interviews. Any measurement procedures that involve individual SMs will either be anonymous or de-identified prior to data receipt by VU. The brief SM satisfaction survey will be completed by each SM following the PDHRA interview with a participating provider. SMs will be asked to note the date and time of the interview and the provider who conducted the interview, but otherwise no other identifying information will be requested from the SM. These surveys will be collected by the installation PDHRA program manager and shipped to VU. De-identified electronic medical records for SM PDHRAs and eight weeks subsequent health care utilization will be provided to VU. It is anticipated that this sub-study will undergo expedited institutional review as all individual SM data are de-identified prior to receipt by VU and the focus is on standard of care procedures. Three months after the study period is complete, electronic records for PDHRA and health care utilization will be requested for all SMs interviewed by participating providers. These will be de-identified prior to receipt by VU. FHP&R will maintain a linking file that will be used to match relevant sources of data at the SM level (audiotapes and electronic records).

B.3 Procedures, Analysis, and Interpretation by Research Aim

Aim 1: Determine key elements of and current impact of training programs for deployment related assessments.

The development of the training and feedback intervention will follow an iterative process of development and improvement. Complementary procedures will be used involving several key stakeholders including national leaders in the PDHRA process through the Expert Panel, and individuals at the installation level through on-site focus groups. A strength of the proposed project is the existing foundation of current research and excellent working relationships with individuals at national and local levels. To guide the development process, weekly project team meetings will be held for the purposes of planning, discussing progress, and problem-solving. These joint VU-FHP&R meetings will be held by teleconference call with three project meetings each year in DC. In addition, two meetings will be held each year with the Expert Panel as described previously in Section B.2, to ensure that intervention development is fully informed by needs and resources of all Service Branches and Components.

The four primary activities for Aim 1 are described in detail below:

- Aim 1.a. Expert Panel review of results from current 2007-2009 VU-FHP&R collaboration to determine criteria for clinical competencies
- Aim 1.b. Focus groups with key stakeholders involved in the PDHRA process

- Aim 1.c. Secondary analysis of PDHRA data to identify variability attributed to the provider
- Aim 1.d. Secondary analysis of PDHRA data to identify variables associated with the development of PTSD.

Aim 1.a. Expert Panel review of results from current 2007-2009 VU-FHP&R collaboration to determine criteria for clinical competencies.

The Expert Panel currently reviews all planning and findings resulting from the current 2007-2009 VU-FHP&R collaboration. Of note for establishing clinical competencies, VU is currently in the process of analyzing a de-identified sample of 300 audio taped telephone interviews conducted as standard operating procedure for the PDHRA process for SMs in the Reserve and National Guard. Typically, the SM completes the self-report section of the PDHRA online, and then calls the provider organization to speak with a health care provider who has access to the SMs PDHRA form online and completes the provider portion of the PDHRA screening. The goal of this current sub-study is to evaluate the effectiveness of provider communication and interviewing skills in eliciting SM reports of problems, particularly focusing on sensitive issues such as behavioral health problems. VU is content coding the nature and quality of the socio-emotional exchange and task-oriented exchange between SMs and clinical interviewers recorded in the electronic audio files. The coding scheme is briefly reviewed here, although it should be noted that this sub-study is currently underway under existing funding.

The expert panel will meet twice in person and twice by teleconference throughout the project with the following objectives in mind:

Schedule and Purpose of Expert Panel Meetings

Time	Format	Purpose
Year 1, Month 1	In person (4 hours)	Project planning including preparation for site recruitment; review of project methods and procedures; review of intervention development plan
Year 1, Month 9	Telcon (2 hour)	Review preliminary intervention manual and support procedures; discuss modifications based on Aim 1 preliminary results
Year 2, Month 2	Telcon (2 hour)	Review implementation of initial training and project status for all sites participating in study
Year 2, Month 11	In person (1 day)	Review preliminary study findings; discuss intervention modifications based on Aim 2 results; focus on cross-Service and Branch needs and resources to enhance broad-scale roll out

The Expert Panel will be convened twice in person in DC (at the beginning and end of the project) and twice by telephone conference call to provide overall guidance to the project, with a particular emphasis on cross-service applications. Each in-person and telephone conference will include large-group review and discussion. In addition, the in-person conferences will include small working groups to provide guidance and recommendations in specific areas (e.g., adaptations to interview guidelines for civilian or military providers).

Coding of SM-Provider Socio-emotional and Task-Oriented Exchanges. The content coding system is called the Roter Interaction Analysis System (RIAS). It is an internationally recognized instrument that has emerged as the most widely used system for coding communication in medical encounters. The RIAS (<http://www.rias.org>) was derived from social exchange theories related to interpersonal influence, problem solving, and reciprocity and can be used with audiotapes or

videotapes. Roter and Larson (2002) provide detailed information regarding the: (a) practicality, (b) functional specificity, (c) reliability, and (d) predictive validity of the RIAS, so this information is not discussed in detail here. For example, Roter and Larson (2002) report that RIAS reliability averages .85 for both patient and physician categories based upon the Pearson correlation coefficient (r), and this reliability remains in the acceptable range after instrument translation to many European languages.

The RIAS focuses on two broad categories of communication patterns: (a) socio-emotional exchange and (b) task-focused exchange (similar to Gallagher, Hartung, & Gregory's 2001 approach). Within each of the two categories, numerous codes can be used to identify the nature of information given and received as well as the general tone of the medical encounter. For example, the RIAS encodes provider empathy, level of psychosocial talk, turn-taking, affirmation/listening statements, and participatory decision making. The manual also provides detailed examples and coding instructions. Using the RIAS, utterances or thought units (information events) (Waitzkin, 1985) are analyzed as the smallest units of verbal communication patterns; and coding is done directly from recording media (electronic audio files in this case) eliminating the transcription step and allowing for incorporation of voice tone and phrasing cues in assigning appropriate codes. The RIAS manual provides instructions about how to code all utterances or information events on an audio or videotape into 39 mutually exclusive categories. Criticisms of the RIAS include issues such as: (a) not coding sequences within topics, (b) not coding patient's signals of interest/attentiveness, and (c) not coding interruptive speech (see Roter & Larson, 2002; Sandvik, Eide, Lind, Graugaard, Torper, & Finset, 2002). These limitations will not hinder the proposed research.

Determining Criteria for Clinical Competencies. These data provide a rich window into the clinical interview, vital to making any specific determination of clinical competencies for PDHRA communication and interviewing skills for health care providers. The results will be reviewed by the project team and the Expert Panel with recommendations made for developing clinical competencies for the training and feedback intervention. These will guide the development of relevant training materials and the training model overall, described further in Aim 2 below.

Aim 1.b. Focus groups with key stakeholders involved in the PDHRA process.

In order to obtain user perspectives to guide development, a focus group will be held with key stakeholders at each of the sites where the intervention effectiveness study is to be conducted. Key stakeholders are those involved with the PDHRA process, including primary care providers, program managers, case/referral managers, commanders/unit leaders, and SMs who have recently been through the PDHRA process.

The primary goal of the focus groups is to identify key elements for a training and feedback intervention relevant to content, format, and implementation. Presented seminar-style, several methods will be used to enhance clinical application of information and data collection. Following a brief introduction of purpose of the meeting and the proposed intervention, case example vignettes will be used to guide discussion of training and use of feedback (Veloski et al., 2005). Participants will take part in discussion groups that measure acceptance, perceived helpfulness, and suggestions for improvement to training and feedback. Discussion will focus not only on the PDHRA process generally, but specifically on how to tailor the intervention to local needs and resources. These will include typical staffing patterns; current quality improvement initiatives related to the PDHRA; supervisory and case review structures; and training resources, including structures to support staff attendance. The focus groups will be conducted following a structured protocol, which will be developed in the early phase of this study. All focus groups will be audio-recorded and transcribed by a professional transcriber. Data will be analyzed using

standard qualitative analysis procedures (e.g., Glaser & Strauss, 1967; Miles & Huberman, 1994). Using a grounded theory approach, data will be reviewed for common themes and specific narratives or quotes that can be used to illuminate the study questions. Data reduction will occur through content analysis with corresponding inter-rater reliability calculations for the purpose of integrating qualitative and quantitative findings. Data interpretation will be negotiated by VU and FHP&R personnel to ensure accuracy in findings, with results used to inform the intervention development process.

Aim 1.c. Secondary analysis of PDHRA data to identify variability attributed to the provider. Under their current contract, VU is applying statistical predictive modeling, a commonly used public health approach to identifying individuals at-risk. The goal is to identify potential criteria, or thresholds, for risk relevant to overall index scores and specific subscale scores derived from the SM self-report. Predictive modeling seeks to establish relationships between sets of variables in order to predict future outcomes. It then forecasts future events based on the identified relationships (Cousins, 2002). VU is in the process of conducting logistic regression models (Roblin, 1999; Schatz, 2003) with the current secondary analysis dataset representing 595,191 SMs from all Service Branches and Components. While the dataset is rich in terms of SM characteristics (e.g., combat exposure, number of deployments, health care utilization), the way the data are provided at present allows no possibility of identifying potential patterns based on provider characteristics. Therefore, we propose to develop additional data readily available at the Service level to be incorporated in ongoing secondary analysis. Specifically, we will request provider identification information, which is available as a digital variable in each of the Service medical records systems (i.e., AHLTA for the Army, NEHC for the Navy). VU and FHP&R will utilize existing relationships with AMSA and the Expert Panel to identify and follow appropriate procedures to request the data from information technology officers at each Service. As per IRB protocols, the only data requested for the purposes of matching the PDHRA with the health care utilization records will be the unique identifier (typically the social security number) for the individual SM record and the provider identification variable. A dataset with these two variables will be provided directly to FHP&R. Prior to providing any data to VU, all records will be de-identified such that no SMs can be individually identified. Existing procedures are already in place to support this de-identification procedure. The data will be analyzed in multivariate logistic regression models. Standard criteria for evaluating the quality of health risk appraisal systems include sensitivity and specificity and goodness of fit.

Sensitivity and Specificity. The sensitivity of a model is its ability to identify those at risk, while specificity refers to a model's ability to identify those not at risk of the outcome. In general, sensitivity and specificity are measures that assess the validity of diagnostic and screening tests (see figure below). Practically speaking, a highly sensitive assessment means is one in which a large percentage of the population are classified correctly as having the disorder; a highly specific assessment is one in which individuals without the disorder in question are not incorrectly identified as having the disorder. Ideal screening assessments are maximally sensitive and specific, where 100% of individuals at-risk would be detected and risk would be ruled out in 100% of those who are truly not at risk. This framework is useful for evaluating decision rules or cut points for a measure because it accurately reflects how an increase on any one of these indices tends to co-occur with a decrease on another. In fact, during development, researchers often use conditional probability analysis values to plot sensitivity against specificity using a range of cut scores to determine the ideal decision rules for classifying individuals into at-risk, or not-at risk groups. Both sensitivity and specificity are intimately related to both positive and negative predictive values.

Calculation of Sensitivity and Specificity

	Not Identified by Model	Identified by Model	
Incorrectly Identified	A	B	Sensitivity = $D/(D+B)$ PV+
Correctly Identified	C	D	Specificity = $A/(C+A)$ PV-

The positive predictive value (PV+) is the percent of positive tests that are truly positive. The negative predictive value (PV-) is the percent of negative tests that are truly negative. Like sensitivity and specificity, PV+ and PV- also show how well the test is classifying individuals into disease and non-disease groups, but the denominator for PV+ is the total number of persons who test positive ($a + b$), while that for PV- is the total number who test negative ($c + d$). (Figure 2) A test with a high PV+ value means that there is only a small percent of false-positives within all the individuals with positive test results. A test with a high PV- value means that there is only a small percent of false-negatives within all the individuals with negative test results.

Goodness of Fit. Indices of the “Goodness of Fit” are most commonly used to describe the quality of predictive models of risk or how well these regression-based models ‘fit’ the actual data observed. Predictive models derived from linear regression typically use R^2 as the primary ‘goodness of fit’ index, whereas the goodness of fit of models based on logistic regression are typically measured using receiver operating characteristic (ROC) curves (Hosmer, 2000). R-squared (R^2) indicates the percentage of total variation among individual observations that can be explained by the model, either explained as a percentage or a number between 0 and 1; 0 explains none of the variance, 1 explains all the variance (Hu, 2004). Thus, the closer a model’s R-squared value is to 1, the better the predictive model explains the data. For logistic regression models, the relationship between sensitivity and specificity is usually explored using a ROC curve. To construct the ROC curve, the x-axis is 1 minus the specificity (false positive) and the y-axis is the sensitivity (true positive rate; Crichton, 2002). The area under the curve (AUC or c-statistic) can summarize the capacity of a model for discriminating those who experience the event of interest (for example, risk of admission) versus those who do not, and can therefore be used to compare models (Liu, 2003).

PDHRA Model to be Tested. As a multi-gate health risk appraisal process, the PDHRA can be tested with layered outcomes based on the initial SM self-report of problems. For the PDHRA, the proximal evaluation criteria, or outcome can be defined as whether or not a referral was made as part of the process. A distal evaluation outcome is derived from review of subsequent SM health care utilization over the eight week period immediately following the PDHRA. Utilization data include completion of appointment, date of appointment, and primary and secondary ICD-9 diagnostic codes.

From the SM self-report of problems, there are five specific subscales within the PDHRA relevant to behavioral health and concussion concerns:

- mTBI symptoms
- PTSD symptoms
- Depressive symptoms
- Alcohol use problems
- Relationship conflicts

From all the data available, there are three primary areas to explore in assessing quality of the health risk appraisal process:

- Concordance between SM self-reported problems, provider-reported concerns, and referral characteristics
- Factors impacting SM acceptance of referral
- Concordance between PDHRA and subsequent health care utilization (SM self-reported problems, provider concerns, referrals)

Aim 1.d. Study of Risk Factors Associated with the Development of PTSD.

Sample and Data. The eligible study population will be Service Members (SMs) with at least one deployment to OEF/OIF of greater than 30 days duration. The DoD and VA will identify eligible SMs from their medical records. Both agencies will de-identify data and assign a unique study identification before releasing the data to analysts for analysis.

Study Design. An observational, retrospective case-control design will be utilized.

"Cases" will be defined as eligible SMs who at some time after first deployment meet the current criteria for confirmed PTSD (at least one in-patient encounter or two outpatient encounters with a diagnostic code indicating PTSD (ICD=309.81)). Medical encounter data for implementing these criteria will include direct care (SIDR, SADR), purchased care (TED-I, TED-I) and VA data.

"Controls" will be selected randomly at the rate of 4 eligible per case. Each control will have been deployed for at least six months prior to the PTSD diagnostic confirmation for the case and not meet the criteria for confirmed PTSD or other mental health disorder at the time of case determination. Controls will be matched with cases on the following variables: gender, Service component, military occupational specialty – factors that could be associated with PTSD but are not being examined in this study.

Variables of interest (independent variables) in this study will include the number of deployments, the total time deployed, average time for each single deployment, dwell time between deployments, previous healthcare utilization patterns, pre-existing medical/mental health conditions, reports and referrals on health assessments including PDHA, PDHRA, PHA, separation exams, VHA entrance exams, clinical health screening results, frequency/intensity of combat exposure, marital/family status, and age, rank, time in service and their association with the development of PTSD.

Statistical Analysis. Analyses will be conducted using Stata (Version, 10, College Station Texas). A multivariate analysis of variance will be performed with logistic regression to identify variables significantly associated with the development of PTSD.

Aim 2: Evaluate the effectiveness of a targeted training and feedback program on primary care provider's interview and clinical communication patterns related to SM behavioral health condition identification and referrals.

Based on the findings from Aim 1, a feedback and training intervention for providers will be tested with a group of 39 primary care providers who conduct deployment-related assessments in four to six sites. Providers will be randomly assigned to one of two interventions (initial training and ongoing feedback or initial training only) or to usual training procedures, with usual training serving as the control arm of the study.

Training and Feedback Intervention

While the specific content, format, and implementation of the intervention will be developed as described in Aim 1 above, we will follow a multi-modal approach to training including an initial workshop, a written guide, and ongoing peer learning utilizing case review. This comprehensive training package is proposed in response to the ample evidence that one-time trainings or provision of manuals alone is insufficient to change practice behavior (e.g., Davis et al., 1995; Davis et al., 1999; Oxmen et al., 1995).

The initial training will consist of a one-day 8-hour workshop to include the following content areas:

- Review of findings from VU-FHP&R collaborative project as relevant to the PDHRA clinical interview
- Role of the provider in the deployment health assessment process
- Individual barriers to self-reporting
- Interview and communication techniques to elicit candid reporting of behavioral health problems
- Identification of behavioral health problems that warrant referral
- Motivational techniques to increase referral acceptance

The initial workshop will be interactive, including didactics and group discussion. Cases will be presented using multiple media (audio and visual). A written guide will be provided as a supplement to the initial training, including information and scholarly readings relevant to all of the content outlined above. Towards the close of the workshop, each participant will be asked to conduct a simulated PDHRA interview with a peer for formative assessment and feedback.

In the feedback plus initial training group an ongoing peer learning will follow a treatment team format and will likely occur on a weekly or bi-weekly schedule, depending on staffing patterns, PDHRA flowthrough, etc. Each case review meeting will be scheduled for 30-45 minutes and led by the PDHRA program manager. The group will review current cases for group discussion to provide ongoing, experience-based learning relevant to the outlined content above. Each participating provider will be asked to share 3-5 audiotapes throughout the study period to be used in the case review meetings to elicit feedback for strengthening communication and interviewing skills. Feedback will continue over the study period of 4 months.

To build in sustainability from the beginning and increase feasibility of large scale roll out after the study has ended, we will utilize a train-the-trainer model in all aspects of the intervention. Each site will be asked to identify one or two providers who can serve as intervention facilitators. These providers will co-lead the initial workshop and provide on-site leadership for the ongoing case review. The project team will be on-site co-leading the initial workshop and be available by teleconference for the case review meetings in a coaching capacity. Intervention facilitators will be considered local experts, and training materials will be provided to them prior to the on-site training visit. They will also participate in training review meeting prior to the on-site training.

Random Assignment to Groups

To test the effectiveness of the intervention, we propose random assignment to three groups:

- Initial Training and Ongoing Feedback
- Initial Training only
- Training as usual (control group)

Implementation Measures

Implementation fidelity will be measured through attendance records for the initial workshop and the ongoing case review, where applicable. Implementation quality will be measured through brief pre- and post-training evaluations for the initial workshop. At the end of the study, we will administer a third evaluation survey to be completed by providers. The evaluations will measure the standard issues related to training (adequacy of setting and presentation; met learning objectives; etc.). In addition, they will also attempt to gauge the perceived usefulness of the training and knowledge gained. Additional data for implementation quality will be obtained by taping the simulated interviews during the initial training workshop and content coding similar to the outcome measures described below.

Outcome Measures

A multi-method approach to outcome measurement is proposed to increase the depth of findings, including:

- Pre- and post-training content analysis of audiotapes
- Brief SM satisfaction survey
- SM PDHRA (DD Form 2900)
- SM subsequent health care utilization over eight week period

Audiotape Content Analysis. Each provider will be asked to audiotape one hour of interviews prior to the random assignment and initial training workshop and one hour each month during the 4-month study period, for a total of five measurement intervals. We anticipate an average of five individual interviews per one hour. Taping dates and times will be randomly selected. Using staff schedules provided by the PDHRA program manager, we will ask each provider to tape at a certain time, with a backup time to be used as needed. Prior to the week of scheduled taping, VU will ship a digital audio recorder to the provider with return shipping provided. Following the taping, the provider will ship the entire audio recorder directly to FHP&R, where they will be de-identified prior to providing the recordings to VU for analysis. The audiotapes will be content coded using the RIAS (Roter & Larsen, 2002) as described above for specific utterances related to socio-emotional and task-oriented exchanges relevant to provider communication and interview style. The criteria established in Aim 1 in collaboration with the Expert Panel will be used to evaluate findings.

Brief SM Satisfaction Survey. A five to seven question written satisfaction survey will be handed to each SM by the health care provider as they exit from the PDHRA clinical interview. The survey will be anonymous. The provider name, date and time of interview will be preprinted on the survey. The survey will assess SM satisfaction with the overall PDHRA process and comfort answering honestly on the self-report and in the provider interview. These forms will be collected by the PDHRA program manager and shipped to VU on a bi-weekly basis (or more frequently in cases with significant throughput). Data will be double-entered at VU to ensure data quality.

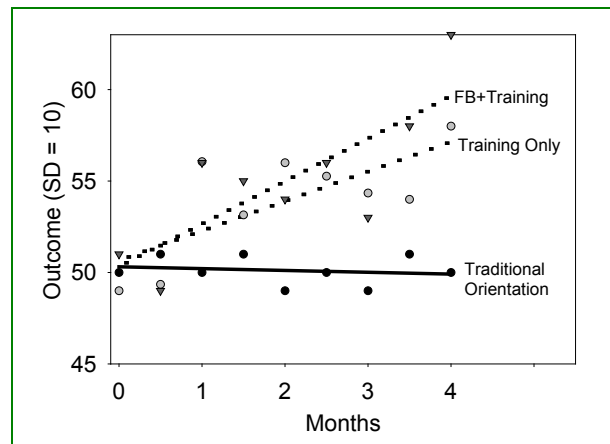
Electronic records for SM PDHRA and Health Service Utilization. We anticipate each provider will interview an average range from 100 to 500 SMs during a typical four-month time period, depending on PDHRA throughput and deployment patterns. We will request the electronic records of PDHRAs (DD Form 2900) and subsequent eight weeks of health service utilization records for each SM interviewed by participating providers during the study period. We will also request clinician and MTF identifying variables directly from an AHLTA contact. All data requests will be conducted using establishing procedures. The electronic records provide important variables for use in determining appropriateness of referral from the perspective of the SM (self-report of problems, acceptance of referral), the provider

(noted concerns, referral made), and actual health care utilization (appointment completion, ICD-9 diagnostic codes).

Analysis Plan

Aim 2 hypothesizes that PCPs given enhanced training or training + feedback will conduct more probing health screens, show improved sensitivity to detecting problems, and more accuracy compared with those given typical training for the screening task. The analysis plan has two general cases for all the study's outcomes. For PDHRA outcomes, PCPs will screen SMs on an average of 12 days during the study's 4 months after training. On each occasion, the PCP evaluates numerous SMs (e.g. 80/day), which will make daily estimates of PCP screening behavior quite reliable. Audio tape analysis, being much more expensive, will be done on 5 occasions with fewer SM interviews. Both sets of outcomes will be treated as longitudinal (repeated measure) hypotheses.

The experimental design compares the 3 treatment groups in a "slope as outcome" design. Since the effects of training or feedback would take time to occur, we hypothesize cumulative results as exemplified in the figure below. Having multiple repeated measures will also make it possible to see if change is constant, or if, for example, the effects of training are lost in later months. At this point our working assumption is that change will be linear. Before analysis we will examine smoothed individual timelines of PCPs on key outcomes to see what the shape of change actually may be (Singer & Willett, 2003). For example, with training there may be an immediate dramatic improvement followed by decline as old habits and workarounds recur. The effect of feedback may be gradual, but superimposed on a nonlinear training curve. When clear patterns can be seen, we can use piecewise longitudinal models (Lambert, Wahler, Andrade, & Bickman, 2001), and if the meaning of the nonlinearity is obscure, generic splines may be used to fit arbitrary growth curves (Harrell, 2001).



Analytic model. A longitudinal repeated measure slope-as-outcome model will be used, as recommended by recent authors (Hedeker & Gibbons, 2006) (Fitzmaurice, Laird, & Ware, 2004). This approach is called by various names such as

random regression, multilevel modeling, hierarchical linear modeling (HLM), multilevel modeling, or mixed modeling. This approach offers important advantages over older analysis of variance (ANOVA) models (Nich & Carroll, 1997), such as better handling of missing values and unequal time intervals between waves and subjects. Longitudinal models are necessary for because the repeated measurements of a given PCP will violate the assumption of independent errors that ANOVA requires. This lack of independence should be modeled, not ignored. Other advantages include: a) Repeated measurements adding to statistical power, b) describing the shape of change over time, and c) avoiding the psychometric problems with pre-post change scores (Lambert, Doucette, & Bickman, 2001). By the late 1990's dependable software was widely available, e.g. from SAS (Littell, Milliken, Stroup, et al., 1996), Bryk & Raudenbush (1992), and others (Pinheiro & Bates, 2000).

Analysis of each outcome will be a "slope as outcome" design in which the effects of treatment develop over time between 3 groups of PCPs randomly assigned to Feedback, Enhanced Training, or Traditional Orientation.

For simplicity, power analysis was done on a linear slope as outcome model using a longitudinal power analysis (Diggle, Heagerty, Liang, & Zeger, 2002). A hypothetical outcome with a starting mean of 50 (SD = 10) was used to represent any of the PDHRA variables. Without empirical data on effect sizes in this situation, we estimate the minimum detectable effect size, as recommended by Kraemer et al. (Kraemer, Mintz, Noda, Tinklenberg, & Yesavage, 2006). We estimate how small a change over time could be detected with traditional standards (Cohen, 1988) of 5% alpha level (two-tailed) and 80% power. The power analysis assumed 13 repeated measurements, 3 groups of 13 PCPs: Control, Training, and Training + FB. Not knowing the temporal stability we will find in these observations, we assumed an average cross-wave correlation of $r = 0.66$ based on our other research with repeated measurements. According to the Diggle model, an endpoint difference as small as Cohen's $d = (M_1 - M_2) / SD_{pooled} = 0.50$ SDs between treated and untreated PCPs could be detected with adequate power. According to (Cohen, 1992), this is a medium sized effect.

The same power analysis was run for the 5-wave analysis of audio tape data. Having fewer repeated measurements lowered power and made the minimum detectable effect size larger, in this case $d = 0.76$ at the endpoint. According to Cohen, 0.80 SDs is a "large" effect. Given the expense of any change in administration of the PDHRA we believe that medium and large effects are reasonable minimum effect sizes. Moreover, increasing sample size as an approach to increasing power would make the study much more expensive.

Longitudinal power analyses had a minimum detectable endpoint effect size of 0.50 SDs (PDHRA) and 0.76 SDs (taped outcomes). The inability to detect small changes is not a problem because training or feedback that produced only small improvements should be counted as a failure.

B. 4 Collaborating Institution

The Center for Evaluation and Program Improvement (CEPI) at Vanderbilt University (VU) has a long and extensive history of successfully completing large scale and complex mental health services research. Almost all of this work has been supported by NIMH or some branch of the military.

Leader in Mental Health Services Research

The Ft. Bragg demonstration project was and still is the largest evaluation of a system of care, lasting over five years with 80 million dollars in funding. A quasi-experimental study of services for military

dependents, the project compared an enhanced system of care (Ft. Bragg) to services as usual (Ft. Campbell and Ft. Stewart). We found that youth in the system of care had no better outcomes and cost more than treatment as usual (Bickman et al., 1995). This study and the follow-up research have been nationally recognized for their quality with awards from several organizations. Major figures in evaluation such as Thomas Cook characterized them as “among the 10 or 20 best evaluation studies ever done in any field by anyone”. Carol Weiss called it “one of the landmark studies of the decade” (Fitzpatrick, 2002, p. 65). We received a competitive renewal from NIMH and additional funds from DoD to extend the data collection two more years and conduct a large number of secondary analyses. One study of PTSD found that clients with a diagnosis of PTSD had greater severity of psychopathology, poorer functioning, and higher treatment intensity compared to others with Axis II mental health disorders (Kelley & Bickman, 1998). We followed up this study with a partial replication of Ft. Bragg in Stark County, Ohio using a randomized design (Bickman, Summerfelt, Firth, & Douglas [a.k.a. Kelley], 1997; Bickman et al., 1999). The results of the Stark County study were the same as in Ft. Bragg. A third study evaluated a Wraparound Demonstration for DoD with the same results (Bickman et al., 2003). In a funded follow-up study to the Stark County project, we conducted qualitative interviews with caregivers and clinicians to inform quantitative findings (Noser & Kelley, 1998). We have conducted mixed methods evaluations of settings ranging from hospital-based psychiatry clinics (Kelley, Van Horn, & DeMaso, 2001) to post-combat environments (Kelley, McDonald, & Mollica, 2005).

Our studies revealed that system level interventions could affect system level variables like cost and access but did not affect clinical outcomes unless improvements were made in clinical services. The disappointing results of these evaluations provided the impetus for our focus on clinician behavior as the critical mediator of outcomes. Therefore, we developed a conceptual approach to clinician change that was grounded in empirical literature. Based on that theory we then developed and tested a feasible method to promote clinician change.

Interventions to Change Provider Behavior

Over the past several years, we have developed a theory and measurement system to support a conceptual model of provider behavior change. We have tested or are testing the effectiveness of feedback on provider behavior in several settings. In a NIMH funded study (5RO1MH62951), we applied research on feedback in an attempt to change the practice behavior of office based physicians. We also have been successful in implementing a self-efficacy enhancing intervention, another key element of our theory (Bickman et al., 1998). A second study, funded by the U.S. Department of Education, investigated the influence of feedback on fidelity of implementation on teacher behavior as part of a larger multi-site study of school-based character education. A third NIMH funded study (RO1-MH068589) uses a longitudinal factorial randomized experimental design to determine the effectiveness of feedback on mental health provider behavior and subsequent client outcomes. A fourth study, funded by the U.S. Department of Education, focuses on testing the effectiveness of feedback from teachers and coaching on that feedback on school principal behavior.

These studies sensitized us to the importance of understanding the context in which the intervention was to take place. Neither settings nor providers are standard units that can be interchanged (Peterson & Bickman, 1989). We have also developed a comprehensive approach to training given the evidence that a training manual or a workshop by itself will result not result in clinician behavior change. Based on a literature review and experience gained from state- and foundation-funded professional development initiatives (Hawley & Kelley, 2005; Kelley, Winson, & Affrunti, 2005) our training package includes multimodal presentation of information (live, online, and written), ongoing coaching and support, and emphasis on clinically useful material, all tailored to the local setting.

Current Collaboration with FHP&R

CEPI is currently contracted with DoD (contract # W81XWH-07-P-1026; 9/07-9/09) to conduct a two-year evaluation of the PDHA/PDHRA process encompassing all Branches and Components of the military. The overall goals of this project are to evaluate if the health risk appraisal process increases access to appropriate care for Service Members in need, with a focus on under-reporting of symptoms on the SM self-report and providers' ability to elicit reporting of symptoms and acceptance of referrals during the clinical interview. Thus we seek to identify SM- and clinician-related factors that influence PDHRA outcomes and understand the nature of the influence. To this end, we use a mixed methods approach including surveys of SMs, interviews with Unit leaders, PDHRA program managers, and other key individual involved in the PDHRA process, a secondary analysis of PDHA, PDHRA, and health service utilization data, and an analysis of audiotapes of health care provider interviews completed over the telephone. The secondary analysis and analysis of telephone screening interviews are of particular interest for the proposed study, as described previously.

C. Military Relevance Statement

The proposed study will directly respond to the psychological health care needs and quality of life of military personnel returning from combat/operational deployments. The identification and referral of potential mental health conditions and concerns has been an issue of much debate within the DoD and across the government.

The best method to ensure accurate and useful assessment of conditions is the first critical piece. This study will engage a comprehensive, multi-method approach that has not been used in the past to examine this population. First, by using a cohort of individuals who have been diagnosed with PTSD in both the DoD and VA, we can look back in their history to determine what contributory factors were associated with that diagnosis. Second, by examining the actual referral process for engaging individuals in mental health treatment, we can make sure that those who really need evaluation and treatment actually are persuaded to seek the appropriate care. Thus, we will create a continuum of more accurate assessment and more compliance with referrals resulting from that assessment.

Once we know the optimal process for referral and communication with patients that encourages them to overcome perceived stigma and seek care, we can train our providers to provide better clinical health risk communication that will motivate those who are identified as in need of treatment to actually follow-through with referrals. Early, more accurate identification and follow-through on treatment promises to reduce morbidity and improve treatment outcomes, returning more of our service members to duty and more of our veterans to fulfilling, high quality lives.

D. Impact Statement

If successful, findings from the proposed study will help assist in making more accurate referrals and more effective referrals in assessment procedures across the lifecycle of care for our service members and veterans. PTSD and other mental health conditions and concerns are

considered by leadership and medical providers as being significant negative health effects of the current conflict. The military and the VA have been pushing aggressively to identify and treat these conditions, but little in the way of solid science has been offered to assist in that process, in part due to time constraints and to incomplete data sets. This study takes a major step toward closing those gaps. It will impact the way that PTSD and other mental health conditions are identified in an assessment process and how primary care providers can best communicate with those with concerns to ensure they get the treatment they need.

If the study is not conducted, the health assessment and referral process will proceed without the benefit of science and fact-based decision making, rendering them less effective and less useful to our service members who struggle with psychological distress and mental health disorders. Military psychological readiness will also suffer as individuals who are referred for and in need of treatment may choose not to access that treatment as a result of lack of effective communication on the part of our providers.

E. Transition Plan

The findings from this study will be integrated into the lifecycle health assessment process including the PDHA, PDHRA and PHA as well as clinical screening processes to better enable our healthcare providers to care for our service members and veterans with negative health effects of combat operations. In turn, as better identification of patients reduces false positives and the true positives are motivated to seek care early, more military personnel will be successfully treated and returned to functional status and back to duty.

III. BIBLIOGRAPHY & REFERENCES CITED

- Ajzen I. & Fishbein M. (1980). *Understanding attitudes and predicting social behavior*. NJ: Prentice-Hall.
- Arocha, J. F., Patel, V. L., & Patel, Y. C. (1993). Hypothesis generation and the coordination of theory and evidence in novice diagnostic reasoning. *Medical Decision Making*, 13, 198–211.
- Bickman, L., Guthrie, P., Foster, E.W., Lambert, E.W., Summerfelt, W.T., Breda, C., & Heflinger, C.A. (1995). *Evaluating managed mental health care: The Fort Bragg Experiment*. New York: Plenum Publishing.
- Bickman, L., Heflinger, C.A., Northrup, D., Sonnichsen, S., & Schilling, S. (1998). Long term outcomes of family caregiver empowerment. *Journal of Child and Family Studies*, 7, 269-282.
- Bickman, L., Noser, K., & Summerfelt, W.T., (1999). Long-term effects of a system of care on children and adolescents. *Journal of Behavioral Health Services Research*, 26, 185-202.
- Bickman, L., Smith, C.M., Lambert, E.W., & Andrade, A.R. (2003). Evaluation of a congressionally mandated wraparound demonstration. *Journal of Child and Family Studies*, 12, 135-156.
- Bickman, L., Summerfelt, W.T., Firth, J., and Douglas, S. (1997). The Stark County Evaluation Project: Baseline results of a randomized experiment. In C. T. Nixon and D. A. Northrup (Eds.), *Evaluating*

mental health services: How do programs “work” in the real world? (pp. 231-258). New York: Sage Publications.

Bryk, A. S., Raudenbush, S. W. (1992). *Hierarchical linear models: Applications and data analysis methods*. Newbury Park, CA: Sage.

Chappelle, W., & Lumley, V. (2006). Outpatient mental health care at a remote U.S. air base in southern Iraq. *Professional Psychology: Research and Practice*, 37(5), 523-530.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, N.J.: L. Erlbaum Associates.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.

Corrigan, P. (2004). How stigma interferes with mental health care. *American Psychologist*, 59(7), 614-625.

Cousins, M. S. (2002). Introduction to predictive modeling. *Disease Management*, 5, 20-23.

Cox, A., Holbrook, D., & Rutter, M. (1981). Psychiatric Interviewing Techniques VI. Experimental Study: Eliciting Feelings. *British Journal of Psychiatry*, 139, 144-152.

Cox, A., Rutter, M., & Holbrook, D. (1981). Psychiatric Interviewing Techniques V. Experimental study: Eliciting factual information. *British Journal of Psychiatry*, 139, 29-37.

Crichton, N. (2002). Receiver Operating Characteristic (ROC) curves. *Journal of Clinical Nursing*, 11, 134-136.

Davis, D., O'Brien, M., Freemantle, N., Wolf, F. M., Fredric, M., Mazmanian, P., Taylor-Vaisey, A. (1999). Impact of formal continuing medical education: Do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *Journal of the American Medical Association*, 282, 867-874.

Davis, D., Thomson, M.A., Oxman, A.D., & Haynes, R.B. (1995). Changing physician performances: A systematic review of the effects of continuing medical education strategies. *Journal of the American Medical Association*, 274, 1863-1897.

Dawes, R. M., Faust, D., & Meehl, P. E. (1989). Clinical versus actuarial judgment. *Science*, 243, 1668-1674.

Diggle, P., Heagerty, P., Liang, K.-Y., & Zeger, S. L. (2002). *Analysis of longitudinal data, 2nd edition*. Oxford and New York: Clarendon Press ; Oxford University Press.

Dudley, R. A. (1996). The best of both worlds? Potential of hybrid prospective/concurrent risk adjustment. *Medical Care*, 41(1), 56-69.

Eddy, D. M. (1984). Variations in physician practice, The role of uncertainty. *Health Affairs*, 3, 74-89.

- Elstein, A. S., & Schwarz, A. (2002). Clinical problem solving and diagnostic decision making: Selective review of the cognitive literature. *British Medical Journal*, 324, 729-732.
- Fitzmaurice, G., Laird, N., & Ware, J. (2004). *Applied Longitudinal Analysis*. Hoboken, NJ: Wiley.
- Fitzpatrick, J. (2002). Introduction to a conversation with Leonard Bickman. *American Journal of Evaluation*, 23, 65-80.
- Gallagher, T. H., Hartung, P. J., & Gregory S. W. Jr. (2001). Assessment of a measure of relationship communication for doctor-patient interactions. *Patient Education and Counseling*, 45, 211-218.
- Glaser, B. G., & Strauss, A. L. (1967). *Discovery of grounded theory: The strategies for qualitative research*. Hawthorne, NY: Aldine de Gruyter.
- Graham, P., & Rutter, M. (1968). The reliability and validity of the psychiatric assessment of the child: II. Interview with the parent. *British Journal of Psychiatry*, 114, 581-592.
- Grove, W. M. & Meehl, P. E. (1996). Comparative efficiency of informal (subjective, impressionistic) and formal (mechanical, algorithmic) prediction procedures: The clinical-statistical controversy. *Psychology, Public Policy, and Law*, 2, 293-323.
- Grove, W. M., Zald, D. H., Lewbow, B. S., Snitz, B. E., & Nelson, C. (2000). Clinical versus mechanical prediction: A meta-analysis. *Psychological Assessment*, 12, 19-30.
- Harrell, F. E. (2001). *Regression Modeling Strategies*. New York: Springer-Verlag.
- Hawley, K. & Kelley, S.D. (2005, May). *Practice-based peer mediated training for physicians*. Invited presentation at 2005 Illinois Conference to Promote Positive System Change in the Field of ASD, Springfield, IL.
- Hedeker, D., & Gibbons, R. D. (2006). *Longitudinal data analysis*. Longitudinal data analysis. Hoboken, NJ: Wiley-Interscience.
- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, 351(1), 13-22.
- Hopkinson, D., Cox, A., & Rutter, M. (1981). Psychiatric Interviewing Techniques III. Naturalistic study: Eliciting feelings. *British Journal of Psychiatry*, 138, 406-415.
- Hosmer, D. W. (2000). *Applied logistic regression 2nd edition*. New York, NY: John Wiley & Sons, Inc.
- Hu, G. (2004). The differences between claim-based health risk adjustment models and cost prediction models. *Disease Management* 7, 153-158.

- Kelley, S.D. and Bickman, L. (1998, June). *Children's posttraumatic stress reactions: Issues related to assessment, outcomes, and service utilization*. Final Report (U.S. Army MEDCOM Grant DA-DA10-96-C-0030), Vanderbilt University, Nashville, TN.
- Kelley, S.D., MacDonald, L., & Mollica, R. (2005). Psychosocial theory and the concrete realities of psychosocial practice at the field level in Bosnia and Cambodia. Final report to the Mellon Foundation, Harvard University, Cambridge, MA.
- Kelley, S.D., Van Horn, M., and DeMaso, D.R. (2001). Using process evaluation to describe a hospital-based clinic for children coping with medical stressors. *Journal of Pediatric Psychology*, 26, 407-415.
- Kelley, S.D., Winson, G., & Affrunti, L. (2005, May). *Building enduring capacity in school districts*. Invited presentation at 2005 Illinois Conference to Promote Positive System Change in the Field of ASD, Springfield, IL.
- Kelly, C. M., & Jorm, A. F. (2007). Stigma and mood disorders. *Current Opinion in Psychiatry*, 20(1), 13-16.
- Koenen, K. C., Goodwin, R., Struening, E., Hellman, F., & Guardino, M. (2003). Posttraumatic stress disorder and treatment seeking in a national screening sample. *Journal of Traumatic Stress*, 16(1), 5-16.
- Kraemer, H. C., Mintz, J., Noda, A., Tinklenberg, J., & Yesavage, J. A. (2006). Caution regarding the use of pilot studies to guide power calculations for study proposals. *Archives of General Psychiatry*, 63(5), 484-489.
- Lambert, E. W., Doucette, A., & Bickman, L. (2001). Measuring Mental Health Outcomes with Pre-post Designs. *Journal of Behavioral Health Services Research*, 28(3), 273-286.
- Lambert, E. W., Wahler, R. G., Andrade, A. R., & Bickman, L. (2001). Looking for the Disorder in Conduct Disorder. *Journal of Abnormal Psychology*, 110(1), 110-123.
- Littell, R. C., Milliken, G. A., Stroup, W. W., & Wolfinger, R.D. (1996). *SAS system for mixed models*. Cary, NC: SAS Institute.
- Liu, H. (2003). Estimating the area under a Receiver Operating Characteristic (ROC) curve for repeated measures design. *Journal of Statistical Software*, Retrieved September 18, 2003 from: <http://www.jstatsoft.org/v08/i12/paper>.
- Meehl, P. E. (1954). *Clinical versus statistical predication: A theoretical analysis and a review of the evidence*. Minneapolis: University of Minnesota Press.
- Meltzer, H., Bebbington, P., Brugha, T., Farrell, M., Jenkins, R., & Lewis, G. (2000). The reluctance to seek treatment for neurotic disorders. *Journal of Mental Health*, 9(3), 319-327.

- Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, CA: Sage Publications.
- Nich, C., & Carroll, K. (1997). Now you see it, now you don't: A comparison of traditional versus random-effects regression models in the analysis of longitudinal follow-up data from a clinical trial. *Journal of Consulting and Clinical Psychology*, 65(2), 252-261.
- Noser, K. and Kelley, S.D. (1998, March). Family and provider perceptions of services. In L. Bickman (Chair), *A system of care: The Stark County evaluation*. Symposium conducted at the 11th Annual Research Conference, A System of Care for Children's Mental Health: Expanding the Research Base, Tampa, FL.
- Oxmen, A., Thomson, M., Davis, D., & Haynes, R. (1995). No magic bullets: A systematic review of 102 trials of interventions to improve professional practice. *Canadian Medical Association Journal*, 153, 1423-1431.
- Patel, V. L., Arocha, J. F., Diermeier, M., How, J., & Mottur-Pilson, C. (2001). Cognitive psychological studies of representation and use of clinical practice guidelines. *International Journal of Medical Informatics*, 63, 147-167.
- Patel, V. L., & Groen, G. J. (1991). The general and specific nature of medical expertise: A critical look. In A. Ericsson & J. Smith (Eds.), *Towards a general theory of expertise: Prospects and limits* (pp. 93-125). Cambridge, UK: Cambridge University Press.
- Patel, V. L., Groen, G. J., & Scott, H. S. (1988). Biomedical knowledge in explanations of clinical problems by medical students. *Medical Education*, 22, 398-406.
- Peterson, K. A., & Bickman, L. (1989). *Program personnel: The missing ingredient in describing the program environment*. San Francisco, CA: Jossey-Bass.
- Pinheiro, J. C., & Bates, D. M. (2000). *Mixed-effects models in S and S-PLUS*. New York: Springer.
- Roblin, D. W. (1999). A low-cost approach to prospective identification of impending high cost outcomes. *Medical Care*, 37, 1155-1163.
- Roter, D., & Larson, S. (2002). The Roter Interaction Analysis System (RIAS): Utility and flexibility for analysis of medical interactions. *Patient Education and Counseling*, 46(4), 243-251.
- Rutter, M., & Cox, A. (1981). Psychiatric Interviewing Techniques I. Methods and measures. *British Journal of Psychiatry*, 138, 273-282.
- Rutter, M., Cox, A., Egert, S., Holbrook, D., & Everitt, B. (1981). Psychiatric Interviewing Techniques IV. Experimental study: Four contrasting styles. *British Journal of Psychiatry*, 138, 456-465.
- Rutter, M., & Graham, P. (1968). The reliability and validity of the psychiatric assessment of the child: I. Interview with the child. *British Journal of Psychiatry*, 114, 563-579.

- Salzer, M. S., & Bickman, L. (1999). The short- and long-term psychological impact of disasters: Implications for mental health interventions and policy. In R. M. Gist & B. Lubin (Eds.), *Response to disaster: Psychosocial, community, and ecological approaches* (pp.63-82). Philadelphia: Brunner/Mazel.
- Sammons, M. T. (2005). Psychology in the public sector: Addressing the psychological effects of combat in the U.S. Navy. *American Psychologist*, 60(8), 899-909.
- Sandvik, M., Eide, H., Lind, M., Graugaard, P. K., Torper, J., & Finset, A. (2002). Analyzing medical dialogues: Strength and weakness of Roter's Interaction Analysis System (RIAS). *Patient Education and Counseling*, 46(4), 235-241.
- Schatz M. (2003). Risk factors for asthma hospitalizations in a managed care organization: development of a clinical prediction rule. *American Journal of Managed Care*, 9, 538-547.
- Singer, J. D., & Willett, J. B. (2003). *Applied Longitudinal Data Analysis: Modeling change and event occurrence*. New York: Oxford University Press.
- U.S. Department of Health and Human Services, Office of Minority Health (2008) [USDHHS]. *National standards for culturally and linguistically appropriate services in health care: Final report*. Available at: www.omhrc.gov/clas/. Accessed October 6, 2008.
- Van Ryn, M. (2002). Research on the provider contribution to race/ethnicity disparities in medical care. *Medical Care*, 40, 140-151.
- Van Ryn, M., & Burke, J. (2000). The effect of patient race and socio-economic status on physicians' perceptions of patients. *Social Science & Medicine*, 50, 813-828.
- Veloski, J., Tai, S., Evans, A. S., & Nash, D. B. (2005). Clinical vignette-based surveys: A tool for assessing physician practice variation. *American Journal of Medical Quality*, 20, 151-157.
- Vogel, D. L., Wade, N. G., Wester, S. R., Larson, L., & Hackler, A. H. (2007). Seeking help from a mental health professional: The influence of one's social network. *Journal of Clinical Psychology*, 63(3), 233-245.
- Vogel, D. L., & Wester, S. R. (2003). To seek help or not to seek help: The risks of self-disclosure. *Journal of Counseling Psychology*, 50(3), 351-361.
- Waitzkin, H. (1985). Information giving in medical care. *Journal of Health and Social Behavior*, 26(2), 81-101.
- Willis, A. G., Willis, G. B., Male, A., Henderson, M., & Manderscheid, R. W. (1998). Mental illness and disability in the U.S. adult household population. In R. W. Manderscheid & M. J. Henderson (Eds.), *Mental health. United States, 1998* (pp. 235-246). Washington, DC: U.S. Department of Health and Human Services.

IV. FACILITIES & OTHER RESOURCES

N/A

V. EQUIPMENT

N/A

VI. ACRONYMS AND SYMBOL DEFINITIONS

AHLTA	Armed Forces Health Longitudinal Technology Application
ANOVA	analysis of variance
AUC	area under the curve
CEPI	Center for Evaluation and Program Improvement
DC	District of Columbia
DoD	Department of Defense
FB	feedback
FHP&R	Force Health Protection and Readiness
HLM	hierarchical linear modeling
IAA	Institutional Authorization Agreement
ICD-9	International Statistical Classification of Diseases and Related Health Problems, 9 th edition
IRB	Institutional Review Board
MRMC	Medical Research and Materiel Command
mTBI	mild traumatic brain injury
MTF	Military Treatment Facility
NEHC	Navy Environmental Health Center
NIMH	National Institute of Mental Health
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
PCP	Primary Care Provider
PDHA	Post Deployment Health Assessment
PDHRA	Post Deployment Health Reassessment
PI	primary investigator
PTSD	Posttraumatic Stress Disorder
PV+	positive predictive value
PV-	negative predictive value
RIAS	Roter Interaction Analysis System
ROC	receiver operating characteristic
SASE	self addressed, sealed envelopes
SD	standard deviation
SES	socioeconomic status
SM	service member
TMA	TRICARE Management Activity
USDHHS	U.S. Department of Health and Human Services
VU	Vanderbilt University

VII. STATEMENT OF WORK

A. Vanderbilt University Statement of Work

Extramural Partner Site (no animal or human use at this site)

Susan Douglas Kelley, Ph.D. (PI) and Leonard Bickman, Ph.D. (Co-PI)

Center for Evaluation and Program Improvement, Vanderbilt University

Study Sites

The training and feedback intervention will be tested in four to six study sites. The number of sites will depend on staffing and PDHRA throughput. Site recruitment will be limited to Army Active Duty. Specific sites will be determined in collaboration with the Expert Panel in the first two months of the project. An estimated 39 providers in total throughout the four to six study sites will be recruited to participate in the study.

Overall Project Timeline

Proposed two-year project period from 01 AUGUST 2009 to 31 JULY 2011.

	YEAR ONE												YEAR TWO											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
IRB protocol development/submission																								
Aim 1. PDHRA focus groups																								
- Development																								
- Administration																								
- Analysis and preliminary report																								
Aim 1. PDHRA secondary analysis																								
- Data request																								
- Analysis																								
- Preliminary report																								
Aim 2. Training & Feedback Intervention Effectiveness Study																								
- Development; recruitment																								
- Pre- and post-audiotape collection																								
- Randomized study																								
- Data request for PDHRA and health service utilization records																								
- Analysis																								
Expert Panel Meetings																								
Preparation of Final Reports																								

Task 1. Timing of Approvals and IRB (Year 1, months 1-11)

If required for this grant, VU and FHP&R will build on excellent working relationships based on our current research project. Appropriate Army IRBs may include Regional Medical Center (RMC) and/or installation IRBs depending on the study sites recruited.

1a. Multi-project Institutional Authorization Agreement (IAA) submitted to TMA Exempt Determination Official to establish the VU IRB as the IRB of record (Year 1, months 1-2)

1b. PHDRA secondary analysis protocol (Year 1, months 1-4)

- Submitted to VU IRB, estimated review time for non-human subjects protocol (Year 1, month 1)
- Submitted to TMA Exempt Determination Official, estimated review time (Year 1, months 3-4)

1c. PDHRA focus group protocol (Year 1, months 1-4)

- Submitted to VU IRB, estimated review time for exempt protocol (Year 1, months 1-2)
- Submitted to appropriate Army IRBs and estimated review time (Year 1, months 3-4)

1d. Training and feedback intervention study protocol (Year 1, months 3-10)

- Submitted to VU IRB, estimated review time for expedited protocol (Year 1, months 3-4)
- Submitted to appropriate Army IRBs, estimated review time (Year 1, months 5-11). Note that final training materials will be submitted for review in months 10-11.

Task 2. (Aim1) PDHRA focus groups (Year 1, months 1-2, 5-9)

2a. Recruitment of four to six study sites (Year 1, months 1-2)

2b. Development of focus group protocols (Year 1, month 1)

2c. Administration of 2-hour focus groups conducted at each study site (Year 1, months 5-7)

2d. Professional transcription of focus group audiotapes ongoing as each completed (Year 1, months 5-7)

2e. Qualitative analysis will be ongoing as each focus group completed with aggregation of findings after all completed (Year 1, months 5-9)

2f. Production of preliminary reports and briefings (Year 1, months 8-9).

Task 3. (Aim 1) PDHRA secondary analysis (Year 1, months 4-9)

3a. Data requests to appropriate information technology officer at each Service for provider and MTF identifiers for PDHRAs completed between 01/01/06 to 05/31/09 (Year 1, month 4)

3b. Linking file created by TMA to provide de-identified dataset to VU containing non-identifying SM identifier and provider/MTF identifiers (Year 1, month 4)

3c. Data management and analysis (Year 1, months 5-7). Abbreviated analytic timeframe estimated because we will be adding this dataset to existing clean datasets with much of the analytic programming developed.

3d. Production of preliminary reports and briefings (Year 1, months 8-9).

Task 4. (Aim 2) Training and feedback intervention effectiveness study (Year 1, months 1-9; Year 2, months 1-11)

4a. Recruitment of four to six study sites (Year 1, months 1-2)

4b. Development of training materials (Year 1, months 1-9)

4c. Randomization of 39 providers across four to six study sites (Year 1, month 12)

4d. Collection of pre-training audiotapes from 39 providers, consisting of one randomly selected hour of PDHRA interviews (Year 1, month 12)

4e. Training and feedback intervention (Year 2, months 1-4)

- Initial training eight-hour workshop for providers in the two intervention conditions (Year 2, month 1)
- Feedback through ongoing peer learning in treatment team format conducted at relevant study sites for 30-45 minutes on a weekly or bi-weekly schedule (TBD) (Year 2, months 2-4)

4f. Measurement of implementation fidelity and quality (Year 2, months 1-4)

- Collection of initial training workshop attendance records, administration of pre- and post-workshop evaluations completed by attending providers, and audiotaping of simulated interviews conducted by providers during initial workshop (Year 2, month 1)
- Collection of attendance records at ongoing treatment team sessions (Year 2, months 2-4)
- Administration of post-training evaluation survey to participating providers (Year 2, month 4)

4g. Measurement of intervention outcomes (Year 2, months 1-4, 7)

- Collection of audiotapes from 39 providers, consisting of one randomly selected hour of PDHRA interviews, one each month of the study period (Year 2, months 1-4)
- Administration of SM satisfaction survey for each SM participating in a PDHRA interview with participating providers during the study period (Year 2, months 1-4)
- Data requests to Army information technology officer at each installation for provider and MTF identifiers for PDHRAs completed by participating providers during study period (Year 2, month 7)
- Data request to TMA for (1) de-identified PDHRAs completed during study period for participating providers during study period, and (2) de-identified health care utilization records for SMs interviewed by participating providers for eight weeks post-PDHRA. Linking file will be created by TMA to provide de-identified dataset to VU containing non-identifying SM identifier and provider/MTF identifiers (Year 2, month 7)

4h. Data management and analysis (Year 2, months 5-11)

Task 5. Expert Panel meetings (Year 1, months 2, 9; Year 2, months 2, 11)

The development of the intervention will be guided by an expert panel composed of SMs in leadership positions related to the PDHRA process from all Services.

5a. Four-hour in-person meeting in Washington, DC (Year 1, month 1; Year 2, month 11)

5b. Two-hour teleconference calls (Year 1, month 9; Year 2, month 2)

Task 6. Project planning meetings (Years 1 and 2, all months)

6a. Weekly one-hour teleconference calls

6b. Three one-day intensive project meetings to be held at FHP&R in Washington, DC (Year 1, month 1, 5, 10; Year 2, month 2, 6, 11)

Task 7. Preparation of final reports (Year 2, months 11-12)

Final reports and briefings will be prepared according to any guidelines or requirements as set forth by the granting agency.

B. Purdue University Statement of Work

Year 1

During the first few months of the first year (09/09-11/09), the majority of the work will be conducted by personnel at the Roudebush VA Medical Center in Indianapolis and at the Department of Defense in Washington, DC. The PI (Mustillo) will establish data collection procedures, coordinate data collection between those two sites, troubleshoot, and assist with technical consultation. During the fall of 2009, she will make trips to Indianapolis and Washington DC as necessary to consult with project personnel regarding data and data collection. In 12/09, Mustillo will obtain the data from both the VA and the DoD and create a dataset for the project. During the spring (01/10-05/10) and summer (06/10) Mustillo will clean, recode, merge, and reshape data and will begin data analyses. Mustillo will also supervise a research assistant to help with these tasks.

Year 2

In Year 2, Mustillo will continue to conduct data analyses in accordance with the specific aims of the project, with the help of a graduate research assistant (08/10-12/10). Additionally, Mustillo and the research assistant will write a report of the findings for the Department of Defense as well as manuscripts for publication in professional journals (01/11-07/11). Mustillo will travel to Washington DC to consult

with DoD personnel, present key findings, and receive input on analyses as necessary. Mustillo also will present at least one manuscript at a research conference.

2011 SCOPE OF WORK MODIFICATION—EXECUTED 3-MAY-11

**IMPROVING DEPLOYMENT - RELATED PRIMARY CARE PROVIDER
ASSESSMENTS OF PTSD AND MENTAL HEALTH CONDITIONS**

IMPROVING DEPLOYMENT-RELATED PRIMARY CARE PROVIDER ASSESSMENTS OF PTSD AND
OTHER MENTAL HEALTH CONDITIONS

Award #: W81XWH-09-2-0172

Dr. Susan D. Kelley & Dr. Len Bickman (Vanderbilt University)

Dr. Sarah Mustillo (Purdue University)

LCDR Nicole Frazer & Dr. Mark Paris (FHP&R)

REVISED RESEARCH PLAN FOR REVIEW AND APPROVAL

March 10, 2011

TABLE OF CONTENTS **Error! Bookmark not defined.**

BACKGROUND AND SIGNIFICANCE	53
There are concerns about SM under-reporting of mental health issues on the Post-Deployment Health Reassessment (PDHRA)	53
The provider interview is an important opportunity to identify previously unreported behavioral health issues	53
Improved provider communication skills could enhance the quality of the PDHRA interview	54
PROPOSED STUDY CHANGES FOR APPROVAL BY MPMC	55
Proposed Modifications to Aim One to Be Approved	56
Proposed Modifications to Aim Two to Be Approved	56
RESEARCH AIMS	57
INTERVENTION DESIGN: COMMUNICATION TRAINING WORKSHOP	58
Format	58
TBD - Possibility of individualized feedback	58
Topics Covered	59
AIM 2 DESIGN AND METHODOLOGY	61
Site Selection	61
Study Sample	61
Recruitment	62
Sites	62
Program Managers and Providers	62
SMs	62
Measures	63
Existing Data Sources	63
Qualitative Measures	69
Analysis Plan	69
Data Management	69
Linking Procedures	70
Expected Data Requests	72
Testing Hypotheses	72
Analytic models	74
Power analysis	74
REFERENCES	76

BACKGROUND AND SIGNIFICANCE

Military personnel returning from overseas deployment are at increased risk for a wide range of physical and mental health problems. To screen for such difficulties and to refer Service Members (SMs) in need of focused clinical evaluation and care, the military departments conduct two post-deployment health risk assessments. The *Post-Deployment Health Risk Assessment (PDHA)* (DD Form 2796, see Appendix A) is administered as close to the redeployment date as possible—within 30 days before SMs depart an overseas assignment or within 30 days after they return to home station. For Reserve Component members, the PDHA must be conducted before they are released from active duty. The *Post-Deployment Health Reassessment (PDHRA)* (DD Form 2900, see Appendix B) is conducted within 90 to 180 days of redeployment. Item contents and clinical procedures for the PDHA and PDHRA are closely parallel. Each entails multi-stage processes requiring that the SM complete a self-report assessment of physical and emotional symptoms, experiences with several aspects of combat, and exposures to a variety of environmental and chemical agents while in the combat zone. Following this, the SM is individually evaluated by a trained health care provider and is given education and informational materials relevant to his or her concerns. Health care providers also make referrals for further evaluation and follow-up treatment on the basis of clinical judgment.

There are concerns about SM under-reporting of mental health issues on the Post-Deployment Health Reassessment (PDHRA)

In our previous study (Bickman et al., 2009), anonymous surveys were collected from SMs completing the PDHRA process. A substantial minority (10-14%) of SMs admitted to underreporting physical, emotional, and alcohol use problems on the PDHRA. More than a third (39%) of SMs agreed that they had experienced an emotional, alcohol, stress, or family problem since returning from deployment or that family or friends had suggested they seek help for such a problem. However, almost half (43%) of these SMs did not report any such problem on the PDHRA form. Further, these unreported problems were usually not uncovered (i.e., documented) by the health care provider during the interview. That is, providers documented five times fewer major concerns and three times fewer medical referrals for those who did not disclose problems on the assessment form versus those who did disclose.

Reasons for under-reporting could include concerns about stigma or barriers to care (e.g., perceived lack of effective treatments). Hoge et al. (2004) reported that only half of those who screened positive for a mental disorder sought mental health care. Furthermore, SMs who screened positive for a mental health problem were twice as likely as those who did not to endorse concerns about stigma and barriers to care.

We found that measures of perceived stigma and barriers to care were higher for SMs who reported on an anonymous survey that family or friends had suggested they seek help or confidentially reported an emotional, alcohol, stress, or family problem since returning from deployment. These SMs also reported lower satisfaction with the PDHRA provider, less post-deployment support and help seeking, and less general willingness to self-disclose (Bickman et al., 2009).

The provider interview is an important opportunity to identify previously unreported behavioral health issues

During the PDHRA process, the provider interview offers the opportunity for providers to reduce concerns about stigma or barriers to care. However, audio recordings of telephone PDHRA interviews

that were coded for content and socio-emotional exchange suggest there is substantial room for improvement, especially regarding mental health issues. We found that providers were less likely to explore behavioral health issues than physical health issues (Bickman et al., 2009). Physical health was almost always mentioned, regardless of SM endorsement on the self-report (87% v 84%), but behavioral health topics were mentioned more when SMs endorsed concerns (64%) than when no concerns were endorsed (35%). Furthermore, we found that education related to behavioral health issues was provided in only 14% of all calls, although this increased to 24% in calls where a medical referral was given. Finally, we found that communication strategies to elicit more self-disclosure were lacking. For example, providers asked five times more closed-ended than open-ended questions, and rapport building statements (e.g., empathy, legitimization) occurred in less than 6% of calls.

For appraisal processes that include a self-report questionnaire and clinical assessment, like the PDHRA, the sensitivity and specificity for the individual components have not been established (Rona, Hyams, & Wessely, 2005). The success of the PDHRA process in helping SMs receive further evaluation where warranted depends on both the SM and the provider. For example, whether the SM self-identifies on the self-report depends on awareness, willingness to disclose, environment specific factors (e.g., leadership support), and understanding of the questions on the form. The provider interview adds the opportunity to identify SMs in need of assistance based not only on the self-report, but also the provider's evaluation of the SM's presentation during the interview. This is especially useful for items where SMs are reluctant to report because of perceived stigma, such as with mental health issues. Yet, evidence suggests that the provider interview does little to increase sensitivity of the process. After accounting for the number of problem areas endorsed by SMs, provider documented concerns made only a small contribution to predicting who received a medical referral. The number of problem areas endorsed by the SM explained 20% of the variance in medical referrals; adding provider major concerns as documented on the PDHRA explained an additional 7% of variance. While this leaves a large percentage of variance unaccounted for, the main point here is that the SM-reported problems are the main predictor of a referral, with the clinical interview as documented on the PDHRA adding a relatively small contribution (Bickman et al, 2009).

Improved provider communication skills could enhance the quality of the PDHRA interview

Research in a broad range of areas indicates that patient-provider interactions can be enhanced by attention to training in interpersonal communication patterns (e.g., active listening). Providers who have received training on interpersonal communication skills provide more medical counseling (Brown et al., 2000), elicit more information and concerns from the patient (Joos et al., 1995; Rao et al., 2007; Langewitz et al., 1998), exhibit greater facilitative communication and information giving (Kim et al., 2002; Rao et al., 2007), ask more open ended questions, ask patients for opinions more frequently, give more biomedical information, have less negative affect (Levinson & Roter, 1993), show improved overall communication skills (Back et al., 2007; Roter et al., 2004; Helitzer et al., 2010; Rao et al., 2007; Roter et al., 1995; Fallowfield et al., 2003), and receive higher patient satisfaction ratings (Rao et al, 2007; Frosthom et al., 2005).

Patients visiting providers who have received training in interpersonal skills communicate more during the interaction (Brown et al., 2000), disclose more medical and psychosocial information (Brown et al., 2000; Levinson & Roter, 1993), are more satisfied with the provider (Brown et al., 2000), perceive receiving more information from the provider (Joos et al., 1995; Rao, 2007), and report reductions in symptoms and impairment (Wissow et al. 2008) and in emotional distress (Roter et al., 1995).

It should be noted, however, that most of the research in this area has been conducted with general practitioners; the applicability to a brief assessment interview warrants further consideration.

Characteristics of a good communications training intervention

There are at least 6 indicators of a quality communication skills training (Maguire and Pitceathly, 2002):

1. Provide evidence of current deficiencies in communication, reasons for them, and the consequences for patients and doctors
2. Offer an evidence base for the skills needed to overcome these deficiencies
3. Demonstrate the skills to be learned and elicit reactions to these
4. Provide an opportunity to practice the skills under controlled and safe conditions
5. Give constructive feedback on performance and reflect on the reasons for any blocking behavior
6. Provide ongoing support and encouragement

Intervention intensity is also important. Many effective training programs are moderate to high intensity, involving at least one day of initial training (Fallowfield et al., 2003; Levinson & Roter, 1993; Rao et al., 2007). Shorter trainings are often not effective or less effective (Cheraghi-Sohi & Bower, 2008; Levinson & Roter, 1993; Joos et al., 1995).

Intensity of the training is not just associated with length, but also with the level of experiential learning and interactivity of training strategies. Indeed, focusing on length may be confounded by the typical didactic nature of shorter trainings. A recent review indicates that didactic training (e.g., typical CME workshops) is less effective than mixed didactic and interactive workshops for improving health care provider practice and health care outcomes (Forsetlund et al., 2009). Some specific components of successful training include providing the evidence base for the suggested skills, the use of role play and/or simulated patients, modeling (i.e., positive and negative examples), and allowing participants to explore their own feelings regarding the desired skills (Merckaert et al., 2005; Aspegren, 1999).

PROPOSED STUDY CHANGES FOR APPROVAL BY MPMC

The current study is consistent with the original aims as proposed in the approved award. However, there are modifications to the timeline and design due to delays caused by intervening events as described in the first year report. Below is a summary of the two primary challenges faced by the team:

1. 2009 NDAA legislation (Sec. 708) mandated substantial revisions to the health risk appraisal process and instituted new requirements for provider training. As of this writing, the NDAA training slides are available online, but the video is still being developed (and thus unavailable for review). Further, the Army is currently piloting the secondary stage screening forms. Our study can proceed regardless of whether the new NDAA requirements are implemented at study sites or not. Our pilot is anticipated to occur in June-July 2011.
2. Substantial delays have been experienced in receiving data from the Armed Forces Health Surveillance Center (AFHSC) required by Vanderbilt and Purdue to complete secondary analyses relevant to Aim 1. A data use agreement (DUA) was signed by all parties on 14-JAN-10; however, as described in detail in the first year report, Vanderbilt did not receive the data from AFHSC

until 06-JAN-11. An issue has arisen concerning linking data from VA and AFHSC, but a solution has been found and efforts are underway to begin the linking process.

Following is a summary of the proposed modifications to the previously approved Scope of Work (SOW) timeline and/or tasks for review and approval by MPMC. **There are no cost changes associated with these modifications.**

Proposed Modifications to Aim One to Be Approved

The intent of the tasks for Aim 1 remains the same, to determine key elements of a training program for providers conducting deployment-related assessments. The three proposed changes are:

1. Eliminate the focus groups with key stakeholders involved in the PDHRA process. The justification for this change is to allow the project to complete data collection by SEP-11. As described in the first year report, focus groups were not conducted during the first year of the project due to the impact of the evolving nature of the NDAA Sec. 708 training. We believe that the thorough literature review, informal conversations with key PDHRA personnel, and guidance by the Expert Panel are sufficient substitutes.
2. Incorporate the potential effects of the NDAA Sec. 708 training into the intervention design by making pilot training content consistent with (and expanding upon) the portion of the NDAA online training slides available on 3-FEB-11 that addresses the therapeutic rapport between SM and provider (particularly slides 41-43 available at http://fhpr.osd.mil/pdfs/NDAA%20FHP_DHCC.pdf).
3. Extend the timeline for the secondary analysis of data conducted by Vanderbilt and Purdue Universities through the no-cost extension year (to SEP-12). The justification for this change is to allow adequate time for analysis and interpretation of these highly complex datasets. To the degree possible, any results will be used to inform the intervention (Aim 2) as it is developed. Results will be incorporated into the final report to inform interpretation of the results of new data analyses conducted for this study.

Proposed Modifications to Aim Two to Be Approved

The intent of the tasks for Aim 2 remains the same, to evaluate the feasibility and effectiveness of a pilot training program. The three proposed changes are:

1. Simplify the research design to the interrupted time series with non-equivalent comparisons as described in the remainder of this document. The simplified design also uses survey methods to assess outcomes rather than intensive coding of audiotaped PDHRA interviews. This change allows for a shorter time period for data collection and fewer providers needed for minimum power to detect medium effect sizes. The justification for this change is to allow the project to complete data collection by SEP-11.
2. Incorporate the potential effects of the NDAA Sec. 708 training into the study design by: (a) collecting data from FHP&R on provider completion of the online NDAA training for providers involved in the study (if feasible); and (b) incorporating questions about NDAA-related implementation in study measures (e.g., the PDHRA program manager interview, the provider background form). Even though providers may not be required to complete NDAA training until after Vanderbilt's study is complete, we still need to track whether providers had been exposed

to the training if we are to control for its effects during the study. Exposure to the training may moderate effects due to our intervention.

3. Extend the timeline for analysis of data, interpretation of results, and report-writing through the no-cost extension year (to SEP-12).

RESEARCH AIMS

Aim 1: Determine key elements of and short term impact of training programs for deployment related assessments. The focus will be on guidance related to eliciting more candid reporting of behavioral health concerns, identification of behavioral health concerns that warrant referral and motivating the SM to accept a referral for further evaluation and/or treatment for behavioral health conditions and concerns. This aim will be accomplished through (a) Expert Panel review of results from 2007-2009 VU-FHP&R collaboration to determine criteria for clinical competencies; (b), review of the NDAA Sec. 708 training to assist in identifying key elements for training interventions relevant to content, format, and implementation and, (c) secondary analysis of PDHRA data from a specifically developed database that includes provider and military treatment facility (MTF) identifiers that will allow identification of variability in concerns and referrals attributed to the provider, over and above SM self-reported problems. In addition, Purdue will conduct a secondary analysis of DoD and VA data to identify PDHRA variables associated with the development of and recovery from PTSD.

Note that the remainder of this document focuses on Aim 2 as the primary study.

Aim 2: Evaluate the effectiveness of a targeted training and feedback program on primary care provider's interview and clinical communication patterns related to SM behavioral health condition identification and referrals. A training workshop that incorporates experiential learning strategies and evidence-supported characteristics of high quality communication training programs will be piloted with a group of approximately 10 providers who conduct PDHRAs at two to three sites. All providers at the intervention sites who agree to participate in the study will participate in the training. As an interrupted time series design, each provider will serve as his/her own control through the administration of measures and collection of existing data sources (e.g., PDHRA) for a time period prior to and following the training. The use of a time series approach will allow us to determine the influence of the communication training as a main effect as well as account for threats to validity, such as changes that occur over time independent of the intervention.

Implementation will be measured through training attendance records, evaluations completed by the providers, and study team observations and recorded notes of the training. Potential moderating variables will be measured through a provider background form (e.g., professional background, demographics, self-efficacy in patient-centered communication), a PDHRA program manager interview (e.g., typical PDHRA processes, existing training programs, etc.), and analysis of secondary data of electronic records (PDHA, provider completion of the NDAA online training and related test scores). Outcome measurement will include brief post-PDHRA surveys completed by the SM (anonymously) and provider immediately after the PDHRA interview and an analysis of secondary data (including electronic records for PDHRA and health care encounters).

In order to further control for threats to external validity, we will also passively collect data from non-equivalent comparison sites. In spite of the short timeframe for data collection (two months), maturation (the passage of time not specific to the event) and history (events that occur between the first and second measurements) are still threats whose potency can be reduced by the inclusion of the comparison sites. Given the additional time and logistics needed and questionable feasibility, and to reduce cost and burden to AFHSC and potential comparison sites, we will not perform active data collection at specific sites, but will instead request data for the study time period (PDHA, PDHRA, HCE, and NDAA training completion and test score data) for *all* Army installations and then choose appropriate comparison sites based on similarity to the intervention sites (see Site Selection, below). This procedure will eliminate the need to create a separate memorandum to the Surgeon General of the Army for recruitment of comparison sites. All data collection at comparison sites will be passive, and will take place over approximately the same time period as data collection for the pilot.

Research questions and hypotheses related to Aim 2 include:

1. Can a brief intervention to enhance communication skills be implemented in the field?
 - a. Any increase in the length of the PDHRA interview is within an acceptable range.
 - b. Key personnel (i.e., participating providers and program managers) find the intervention to be relevant to their work and acceptable.
2. Will this intervention help providers use the interview as an opportunity to identify SMs in need of assistance for behavioral health problems?
 - a. Increased provider concerns and referrals for behavioral health issues documented on the PDHRA.
 - b. Higher ratings of SM self-reported disclosure; intent to comply with referral; and ratings of provider patient-centered communication.
 - c. Higher ratings of provider-reported elicitation of behavioral health concerns.

INTERVENTION DESIGN: COMMUNICATION TRAINING WORKSHOP

Format

VU will arrive at the site 2-3 days prior to the intervention to collect data pre-training. The trainer will arrive on site on the 3rd day to deliver the training workshop. VU would remain on site 2-3 days post intervention to collect post-training data.

The workshop content will be tailored to the PDHRA encounter and will be informed by the communications skills presented in the NDAA training, as well as published literature on best practices in patient centered communication techniques (see Table 1, below).

The workshop will last approximately 4 hours and will include established quality techniques, such as establishing need for training, eliciting provider experiences/ frustrations, introducing and demonstrating skills, group discussion, and providing the opportunity to practice and receive feedback. The practice will occur in the form of either role play or interaction with a standardized patient (SP).

TBD - Possibility of individualized feedback

Providing individualized feedback and consultation is an established method for enhancing training effects. This could be in the form of a follow-up consultation by telephone to review actual cases with providers and their experience in implementing communication skills. A second option is to have providers interact with a standardized patient as part of the training, and to receive feedback on the interaction from both the SP and the trainer. Because it is time consuming, this interaction would take place separately for each provider and would add one hour to the training per provider (5 hours total).

Topics Covered

While the specifics of training content are still being developed, we have identified the communication behaviors that the training will aim to improve. These are divided into “Context-Free” and “Context-Specific” behaviors. By context-free, we mean provider communication behaviors that do not apply to any specific area of the PDHRA, but rather are viewed as consistent with a patient-centered approach. By context-specific, we mean provider communication behaviors that are specific to the PDHRA process. The purpose of the PDHRA is to increase SM access to care *where warranted* and provide documentation of deployment-related concerns. Published material available on pdhealth.mil and elsewhere states four primary objectives for the PDHRA: (1) Clarify and confirm SM responses on DD Form 2900; (2) Educate SMs about concerns, healthcare, and treatment options; (3) Conduct a risk assessment; and (4) Make referrals for further evaluation where warranted. We intend to target several provider communication behaviors that are consistent with the patient-centered approach and that expand upon these four PDHRA objectives. Table 1 summarizes both context-free and context-specific target behaviors.

Table 1: Training Content Summary

Context-Free Communication Behaviors	
Behavior Targeted	Example
Increasing use of open-ended questions*	“What symptoms are you having right now?”**
Listening	Decrease in ratio of provider talk to SM talk
Expressing empathy	“That would be depressing.”
Showing concern	“I’m glad it worked out . . .
Providing reassurance	“There are effective treatments for that.”
Legitimizing statements	“It doesn’t get any easier.”
Asking SM opinion	“Do you want to be seen for that?”
Active listening	Back channeling to indicate interest, e.g. “mmm” or “Tell me more.”
Making partnership statements	“I can get that information for you.”

Table 1: Training Content Summary (continued)

Context-Specific Communication Behaviors	
Behavior Targeted	Example
Check SM understanding of PDHRA purpose and address concerns about disclosure.	What's your understanding about what you're doing here today?
Partnering in PDHRA process	Explaining the process, what the provider is doing with the form on the computer, what they mark down.
Specifically ask open-ended questions about general well-being at the beginning of the interview including psychosocial issues related to reintegration, PTSD/depression, relationships, and alcohol use regardless of what SM marked on DD Form 2900	<ul style="list-style-type: none"> • What concerns do you have that I can help you with today? • How are things going since you returned? • Everyone goes through an adjustment coming home. How is it going for you? • Now we've talked about your physical health problems. What about other concerns related to adjusting to being back home, like feelings of being worried or sad or having trouble in relationships?"
Ask specific questions of all SMs who report a problem	<ul style="list-style-type: none"> • Ask if SM has received treatment or is in treatment • Ask if satisfied with treatment or feels need for further treatment
For all SMs regardless of whether referral is warranted, provide brief statements to legitimize common reintegration concerns	Many soldiers have ups and downs adjusting to being back.
For all SMs, give brief counseling on self-care and self-referral that can be accessed any time	You can always talk to a chaplain or make an appointment on your own with your primary care provider. (Note: could also refer to websites and other resources)
For all SMs who warrant a referral, elicit SM reactions to problem identification/referral recommendation and address concerns/barriers	I'd like to recommend a referral for that; how does that sound to you?
For all SMs who warrant a referral, provide brief education on treatment effectiveness for mental health problems.	There are effective treatments for that. (Note: could also refer to resources in NDAA Sec. 708 training slides if providers are already familiar with it).
For all SMs who warrant a referral, check SM understanding of how to achieve referral	Do you know how to make the appointment for that? or any statement explaining the next step in SRP.
Building therapeutic alliance and bridging of social distance	<ul style="list-style-type: none"> • Statements that acknowledge cultural differences like civilian provider, deployment experience, leadership support. • Thanking SM for service

*Close-ended questions (e.g., "Have you been screened for PTSD?") and checks for understanding (e.g., "I see that you were in an explosion") will not necessarily decrease, because these are indicative of the PDHRA.

**Examples in quotation marks are actual provider utterances from de-identified audio-recordings collected during Vanderbilt's previous research (Bickman et al., 2009).

AIM 2 DESIGN AND METHODOLOGY

The design is an interrupted time series with non-equivalent comparison sites. The intervention will take place during site visits to 2-3 installations. The comparison sites are labeled non-equivalent because we are not randomly assigning comparison and intervention sites to the intervention. The inclusion of comparison sites will allow for measurement of common threats to validity (e.g., Army-wide changes in PDHRA processes that co-occur with the intervention). The interrupted time series data will be collected before and after the intervention so each provider serves as his/her own control.

At all sites, we will be collecting previously existing data (e.g., passive data collection) related to PDHA, PDHRA, health care encounter information, and NDAA training. At the intervention sites, we will be actively collecting data through survey methods and qualitative methods (interviews and observation) as described further below.

Site Selection

This study targets Army installations. The intervention sites will be selected based on number of providers and PDHRA flow through. Also, sites that previously expressed interest in participating (Campbell, Riley, Benning, Carson) will be considered. This introduces the possibility of a “volunteer effect” creating systemic bias. However, because we are only including 2-3 intervention sites, generalizability will be limited in any case. In addition, for a pilot, demonstrating generalizability is less important than maximizing the chances of finding an effect. Using sites that have previously expressed interest is likely to result in higher levels of leadership and provider cooperation, which will increase chances of detecting positive results. After a pilot demonstrates feasibility and effectiveness, questions of whether the intervention is generalizable could be addressed by conducting an evaluation of implementation and effectiveness of the intervention at a broader range of installations.

The non-equivalent comparison sites will be selected from the Army-wide dataset. The data will be evaluated at the installation level for PDHRA flow through, number of providers, and types of units. Then comparison sites will be selected according to comparability with the intervention sites based on these criteria.

Study Sample

Table 2 shows the number of expected/required sites and participants. Previously identified potential study sites and the approximate number of available providers at each are shown in Table 3.

Table 2. Number of expected/required participants.

Participant	Number required/expected to participate	
	Intervention Sites	Comparison Sites*
Site	2-3	At least 2-3
Program Manager	2-3 (One per site)	n/a
Providers	12 total	At least 30
SMs	80 minimum per provider, but ideally as many as possible**	20 minimum***

*Note that data collection at comparison sites will not require active participation since only passive data collection will occur.

** More SMs would be lead to smaller standard errors and narrower confidence intervals (i.e., more precision).

*** 20 SMs would detect a small intraclass correlation (ICC). A significant ICC would indicate that providers differ from each other rather than offering a uniform standard of care.

Table 3. Previously identified installations and number of available providers.

Potential Intervention Sites	Number of Providers
A	4-6
B	3-4
C	16
D	unknown

Recruitment

Sites

Intervention sites will be recruited via a memorandum to the Surgeon General of the Army describing study events in detail and requesting the nomination of sites for participation. The memorandum will be prepared in cooperation with FHP&R. Because only passive data collection will take place at comparison sites, no memorandum to the Surgeon General of the Army will be required for their nomination.

Program Managers and Providers

The responsibilities of Program Managers and providers during the study will be described in the memorandum sent to the Army Surgeon General, and appropriate site personnel will inform these individuals of the tasks involved in participation.

All study procedures will be submitted to the Vanderbilt and MPMC IRBs for approval prior to implementation. Separate IRB protocols will be prepared for the Program Manager interview, and the provider training and survey completion. The Program Manager protocol is expected to be approved as exempt (i.e., not requiring annual review by IRB) under 45 CFR 46.101(b)(2) (non-identifiable data and minimal risk to subjects). The provider training protocol will be submitted as expedited and informed consent will be obtained from all participants.

SMs

It is expected that SM survey procedures will be submitted as exempt under 45 CFR 46.101(b)(2). All SMs completing the PDHRA process during VU's site visit will be eligible to complete the survey. We expect recruitment will occur during the pre-briefing that SMs are typically given prior to starting the PDHRA process. The recruitment script will be delivered by a VU researcher with a short introductory statement by the site personnel giving the pre-briefing. SMs agreeing to complete the survey would be instructed to do so after completing the PDHRA interview.

Measures

Research measures used in this study fall into three categories: 1) Existing data sources, 2) Vanderbilt-developed quantitative measures, and 3) Vanderbilt-developed qualitative measures. The sections below briefly describe the content and administration details of each measure. For a description of data management issues associated with these datasets, including a summary of how different datasets will be linked to each other, see the Analysis Plan below.

Existing Data Sources

These measures come from pre-existing sources and do not require any additional time commitment from providers or SMs (see Table 4).

Table 4: Existing Data Sources

Data Source	Construct	Respondent	Collected from		Frequency and Collection Period
			Intervention Sites	Comparison Sites	
PDHRA	<ul style="list-style-type: none"> • SM self-reported symptoms • Provider documented concerns • Provider documented referrals • Demographic variables 	SM and Provider (includes provider ID)	X	X	<p>All PDHRAs completed during the study time period: 4 weeks before and 4 weeks after intervention (8 weeks total)</p> <p>All pre-existing PDHRAs associated with the PDHRAs collected in the timeframe. These data will include a unique StudyID for each SM.</p>
PDHA	<ul style="list-style-type: none"> • SM self-reported symptoms • Provider documented concerns • Provider documented referrals • Combat exposure 	SM and Provider	X	X	All pre-existing PDHAs associated with the PDHRAs collected in the timeframe described above. These data will include a unique StudyID for each SM.
Health Care Encounter (HCE)	<ul style="list-style-type: none"> • Dates of encounters, admissions, discharges • Setting of encounters • ICD-9 Code (Diagnosis) • CPT Code (Service provided) 	n/a	X	X	All pre-existing HCE associated with the PDHRAs collected in the timeframe described above PLUS an additional six weeks after the PDHRA. These data will include a unique StudyID for each SM.
NDAA training completion and final score*	<ul style="list-style-type: none"> • Date completed • Post-test score 	Provider	X	X	One time 4 weeks after intervention. These data will include fields for provider service, rank, name, type, and duty station.

Table 4: Existing Data Sources (continued)

Data Source	Construct	Respondent	Collected from		Frequency and Collection Period
			Intervention Sites	Comparison Sites	
DEERS	<ul style="list-style-type: none"> • Education level • Component at form completion • Race and ethnicity • Unit identification code (UIC). 	SM	X	X	All data associated with the PDHRAs collected in the timeframe described above. These data will include a unique StudyID
Army (MEDPROS)	<ul style="list-style-type: none"> • Provider ID • Location ID 	n/a	X	X	One time for all intervention and comparison sites
Intervention installations	<ul style="list-style-type: none"> • Provider ID • Location ID • Form completion date • Form version 	n/a	X		One time 4 weeks after intervention. These data will include a unique study ID for each SM

* We plan to receive these data from FHP&R. However, if this is not possible due to security restrictions, we will ask individual providers for these data.

Quantitative Measures

There quantitative measures include written surveys to be completed by providers or SMs. All are brief instruments which will require a minimal amount of time for respondents to complete. These measures are summarized briefly in the table below.

Table 5: Quantitative Measures

Data Source	Respondent	Time to Complete	Constructs	Collected from		Frequency and Collection Period
				Intervention Sites	Comparison Sites	
SM Post – PDHRA satisfaction survey	SM	5-10 minutes	<ul style="list-style-type: none"> • Reported disclosure of mental health (MH) symptoms • Intent to comply with referral (if given) • Attitudes to disclosure and help-seeking • Concerns about barriers and stigma • Previous help-seeking • Self-reported MH concerns • Satisfaction with provider • Rating of provider patient-centered communication 	X		All SMs completing PDHRAs within 2-3 days pre- and post-intervention (4-6 days total)

Data Source	Respondent	Time to Complete	Constructs	Collected from		Frequency and Collection Period
				Intervention Sites	Comparison Sites	
Provider post-PDHRA satisfaction survey	Provider	30 seconds	<p>Providers will use a Likert Scale to report on 3 items:</p> <ul style="list-style-type: none"> • Whether SM reported MH symptoms during interview that were not reported on DD Form 2900 • Degree to which provider believes SM accurately reported all MH symptoms during interview • Whether provider believes SM could benefit from further evaluation for MH symptoms 	X		Completed after each PDHRA interview conducted within 2-3 days pre- and post-intervention (4-6 days total)

Table 5: Quantitative Measures (continued)

Data Source	Respondent	Time to Complete	Constructs	Collected from		Frequency and Collection Period
				Intervention Sites	Comparison Sites	
Provider background survey	Provider	5 minutes	<ul style="list-style-type: none"> • Demographic background • Professional experience • PDHRA experience • Self-efficacy, knowledge, and attitudes relevant to patient-centered communication 	X		One time prior to intervention
Provider post intervention evaluation	Provider	10 minutes	<ul style="list-style-type: none"> • Self-efficacy and knowledge relevant to patient-centered communication • Satisfaction with training 	X		One time after intervention

Qualitative Measures

Three qualitative measures will also be used during the study and will be administered at intervention sites by members of the Vanderbilt research team.

Program Manager Interview

Before the communication training takes place, a member of the Vanderbilt research team will conduct a twenty minute face-to-face or telephone interview with the Program Manager(s) at each intervention site. This interview will be semi-structured in nature; set questions will be asked of each respondent, and following initial responses, interviewers will use pre-developed prompts to probe for more detailed information. Interviewers will take notes during the interview but will also use digital audio-recorders to ensure greater accuracy and capture of detail. Typically, the program manager interview will focus on several key areas of interest related to the PDHRA process: general PDHRA background, PDHRA implementation, SM pre-briefing and education, command support, referral processes at the installation, background and training of providers conducting PDHRA assessment, utilization management and reporting, and general barriers and facilitators. Program managers at intervention sites will also be asked to provide feedback on the intervention's feasibility and effectiveness in a second semi-structured interview to take place after the intervention.

Observation of Training Sessions

Members of the Vanderbilt research team will observe and take notes on trainings at each intervention site. In order to improve the accuracy of recording and to help standardize the observations of multiple observers, a written observation guide will be developed and used during all trainings. Training sessions will also be video recorded to ensure accuracy of observations.

Observation of Time for Completion of PDHRA Interviews

Members of the Vanderbilt research team will use time-sampling techniques to gather data on duration of the PDHRA interviews at each intervention site. A written observation sheet will be developed and used to collect data.

Analysis Plan

Data Management

The PDHA, PDHRA, DEERS variables, and health care encounter (HCE) data will be received from AFHSC in an electronic format. The NDAA completion data will be received in an electronic format from FHP&R (if feasible). The SM and provider surveys and written measures associated with the training workshop will be collected with paper and pencil during site visits. CEPI has a formal data management workflow used for many R01-scale projects (Smith, Breda, Simmons, Lambert & Bickman, 2009). Raw data are captured in the most convenient source, e.g., double-entry Microsoft (MS) Access databases and files from various sources. Data are then arranged in orderly hierarchy on VU's Windows server, which has daily tape backups and daily security checks by the VU network manager and senior technicians. Quantitative data are then exported into SAS data sets, either by directly reading by SAS or export by software. Then an array of SAS programs are written to clean, label, and transform the raw data, mark missing values, and enforce consistent statistical coding (e.g., no-yes 0-1). Finally, the SAS data sets are merged into analytic files that are either wide (one line per participant) or tall (multiple lines per participant for repeated measures analysis).

Linking Procedures

Note that all linking procedures are consistent with existing procedures used in the previous Vanderbilt evaluation and in retrieval of secondary analysis datasets related to Aim 1 of this study to facilitate ease of use for AFHSC.

The linking procedures described below are shown graphically in Figure 1 on the next page.

Pre-existing data sources

All pre-existing data sources except NDAA scores (PDHA, PDHRA, HCE, and DEERS variables; see Table 4) will be linked because AFHSC assigns each case (i.e., SM) a unique study ID in place of the SSN. Vanderbilt will receive these data de-identified with only the study ID. If feasible, the NDAA data will be obtained from FHP&R and will include provider name, which can be used by VU to link these data to the other pre-existing data (provider ID from the Army is in the format firstname.lastname). If FHP&R cannot provide these data we will ask individual providers from study sites for the completion date and score.

SM survey and PDHRA

All SMs who agree to take a survey will be asked to provide their birth date, initials, branch of service, and pay grade on a card stapled to the survey. Each card will be printed with a unique serial number, which will also be printed on the survey. The cards will be separated from the surveys and sent to FHP&R by a designated individual on site who is not associated with Vanderbilt. The cards will then be retrieved by an outside data entry company which will enter the data into a spread sheet and return the file to FHP&R via email. This spreadsheet will be sent to the epidemiologist at AFHSC who has access to PDHRA files and who will pull the existing data for this study (see Table 4). The card data will be used by the epidemiologist to identify the subset of PDHRAs that correspond to the surveys. AFHSC will assign each record (i.e., SM) in the data set a unique study ID which will be used to link the SM survey data and the existing data. After all identifying information has been removed Vanderbilt will be sent the file containing the unique study ID and corresponding survey ID. Vanderbilt will maintain the hard copies of the SM surveys from site visits, which will be labeled with the survey ID, but contain no identifying information. Thus, Vanderbilt will know which SM Surveys and PDHRAs come from the same SM but will not at any time have access to any information that can identify SMs.

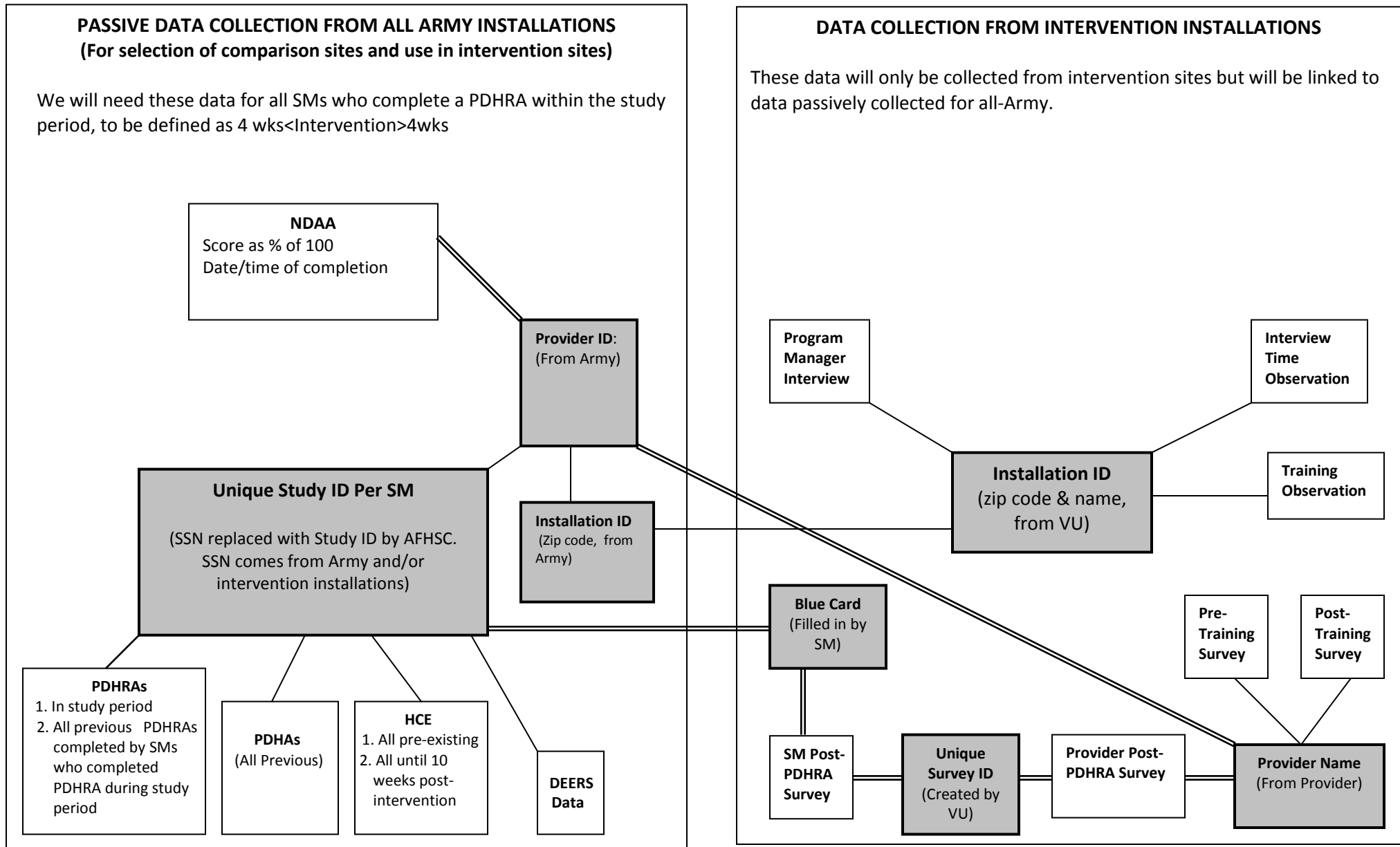
Provider and SM post-PDHRA satisfaction surveys

The SM and provider satisfaction surveys will be linked directly to each other with a unique serial number printed on each pair of surveys. The corresponding SM and provider surveys will be stapled together and detached by the provider just before completion. The surveys will be collected by VU during the site visit. Thus, it will be possible to assess the impact of the intervention for each provider by examining the corresponding PDHRA, SM survey, and provider survey for each PDHRA interview.

Provider surveys

Providers will be asked to indicate their provider ID/name with a check box on each survey they complete. In our previous study (Bickman et al., 2009) only 75% of SM surveys were able to be linked to PDHRAs following the card separation procedures described above. In the event of a broken link, having provider ID and name on the provider survey will allow us to identify each provider's surveys.

Figure 1. Diagram of linking procedures for all data elements. Grey boxes indicate linking variables. Double lines indicate critical links.



Expected Data Requests

Data requests will be submitted for the pre-existing data sources described in Table 4. The timeline for these data requests is described below for each organization providing data.

Army

The data request to the Army will be an amendment to the existing data request to include data for the intervention (i.e., for SMs who completed PDHRAs within 4 weeks before and after the intervention). This amendment will be submitted as soon as possible, but no later than four weeks after the intervention.

AFHSC

The data request to AFHSC will require a new data use agreement (DUA) that is currently being drafted. The data request will be submitted as soon as possible, but no later than 10 weeks after the intervention (this will allow for six weeks of post-PDHR HCE for PDHRAs completed four weeks after the intervention)

FHP&R

If feasible, FHP&R will provide NDAA test scores and completion dates, and because FHP&R is the co-sponsor in this award, they will submit this request. This request will be submitted as soon as possible, but no later than 4 weeks after the intervention.

Intervention Sites

The specific sites for the intervention have not been selected yet, so the data request procedures are unknown. However, the data request will be submitted as soon as possible, but no later than four weeks after the intervention.

Testing Hypotheses

The analyses are organized around the study's specific questions, as shown in Table 6.

Table 6. Specific Questions and Analytic Plan

Specific Question	Design	IVs	DVs
Can a brief intervention to enhance communication skills be implemented in the field?			
Any increase in the length of the PDHRA interview, is within an acceptable range.	Mean comparison of pre- and post- intervention interview length and opinion of provider	Whether the interview or response was pre- or post-intervention	Mean length of interview before and after training Duration of interview that is acceptable
Participating providers find the intervention to be relevant to their work and acceptable.	Mean comparison of pre- and post- intervention responses	Whether the response was pre- or post-intervention	Change in self-efficacy in eliciting mental health concerns and interpersonal communication Satisfaction with training (post only)

Table 6. Specific Questions and Analytic Plan (continued)

Specific Question	Design	IVs	DVs
Will this intervention help providers use the interview as an opportunity to identify SMs in need of assistance for behavioral health problems?			
Increased provider concerns and referrals for mental health issues documented on PDHRA	Interrupted time series within the intervention providers	<ul style="list-style-type: none"> • Time from the start of the observational period • Whether the observation is pre- or post-intervention • Time since the intervention 	<ul style="list-style-type: none"> • Number and type of provider documented concerns • Presence of provider documented medical referral • Presence of provider documented mental health referral
	Mean comparison of intervention group and non-equivalent comparison group	<ul style="list-style-type: none"> • Whether the observation is from the intervention or comparison group 	<ul style="list-style-type: none"> • Number and type of provider documented concerns • Presence of provider documented medical referral • Presence of provider documented mental health referral
Higher ratings of SM self-reported disclosure; intent to comply with referral; SM ratings of provider patient-centered communication	Interrupted time series within the intervention providers	<ul style="list-style-type: none"> • Time from the start of the observational period • Whether the observation is pre- or post-intervention • Time since the intervention 	<ul style="list-style-type: none"> • SM-reported disclosure • Intent to comply with referral (if given) • SM satisfaction with provider • Ratings of provider patient-centered communication
Higher ratings of provider-reported elicitation of mental health concerns	Interrupted time series within the treatment providers	<ul style="list-style-type: none"> • time from the start of the observational period • whether the observation is pre- or post-intervention • time since the intervention 	<ul style="list-style-type: none"> • Whether SM reported MH symptoms during interview that were not reported on DD Form 2900. • Whether provider believes SM accurately reported all MH symptoms during interview. • Whether provider believes SM could benefit from further evaluation for MH symptoms (e.g., providers may believe a referral would be beneficial but not have a technically positive screen to justify).
Increased	Mean comparison	<ul style="list-style-type: none"> • Whether the 	<ul style="list-style-type: none"> • Number of health care

number of health care encounters after the PDHRA	of health care encounters before and after PDHRA for SMs with trained provider vs. SMs with untrained providers	observation is from the intervention or comparison group	encounters after the PDHRA
--	---	--	----------------------------

Analytic models

Segmented (or piecewise) linear regression analyses will be conducted with separate slopes of outcome for the pre- and post-intervention period. This type of regression controls for the baseline trend by testing the change in level and slope. The dependent variables will be the outcomes of interest (provider concerns, referrals, self-efficacy and SM disclosure and attitudes) and the independent variables will be time from the start of the observational period, whether the observation is pre- or post- intervention, and time since the intervention. The three levels of the regression will be 1) slope, 2) time within provider, and 3) providers within site. The analyses will account for clustering of SMs within providers within installations.

In addition, potential moderating variables from the PDHA (e.g., pre-existing mental health problems, combat exposure), provider background form (e.g., professional background, demographics, self-efficacy in patient-centered communication), PDHRA program manager interview (e.g., typical PDHRA processes, existing training programs, etc.), and analysis of secondary data (e.g., provider completion of the NDAA online training and related test scores) will be incorporated into the analytic models. These moderating variables may affect the strength of the relationship between the independent and dependent variables; therefore adding them to the model will allow us to better account for the variance attributable to the intervention itself.

Power analysis

A power analysis (Hintze, 2005) was conducted and it was determined that 10 providers across all intervention sites are needed to detect medium effects (power = 80%, alpha < 5% two-tailed). An average cross wave (per day) correlation of 0.9 was used, assuming that providers tend to behave similarly from day to day. According to Cohen (1988, 1992), effect sizes of about 0.2 are considered small; 0.5 are considered moderate; and 0.8 are considered large.

As stated previously, non-equivalent comparison installations will also be selected based on criteria they have in common with the intervention sites. PDHRA data will be gathered passively in order to 1) develop estimates for installation- and provider-level influences on SM self-reported problems and referral patterns, and 2), to inform the generalizability of installations through a description of the PDHRA process. A significant intraclass

correlation (ICC) would indicate that providers differ from each other rather than offering a uniform standard of care. To see how many providers are needed to detect an ICC, we estimate power to detect a small ICC, which according to Raudenbush (Raudenbush & Liu, 2000) is $ICC = 0.05$. According to Pass software (Hintze, 2005), if each provider had 20 SMs and there were 30 providers, we would be well powered ($p = 0.85$) to detect a small effect. Samples with fewer than 30 providers or fewer than 20 SMs would have less power to detect a small ICC.

REFERENCES

- Aspegren K. (1999). BEME guide no.2: Teaching and learning communication skills in medicine--a review with quality grading of articles. *Medical Teacher*, 21(6), 563-570.
- Back, A. L., Arnold, R. M., Baile, W. F., Fryer-Edwards, K. A., Alexander, S. C., Barley, G. E., et al. (2007). Efficacy of Communication Skills Training for Giving Bad News and Discussing Transitions to Palliative Care. *Arch Intern Med*, 167(5), 453-460. doi: 10.1001/archinte.167.5.453
- Bickman L, Kelley SD, Leslie MW, Vides De Andrade AR, Hargraves RP, Lambert WE, Breda CS, Tempesti T, Demoret DL, Lapare CE, Tenore B (2009). Program Evaluation of Post-Deployment Health Assessment (PDHA) and Reassessment (PDHRA) Processes (2009). Available online at the Defense Technical Information Center (DTIC) (<http://handle.dtic.mil/100.2/ADA528063>).
- Brown L.D., de Negri B, Hernandez O., Dominguez L., Sanchack J.H., & Roter D. (2000). An evaluation of the impact of training Honduran health care providers in interpersonal communication. *International Journal for Quality in Health Care*, 12(6), 495-501.
- Cheraghi-Sohi, S., & Bower, P. (2008). Can the feedback of patient assessments, brief training, or their combination, improve the interpersonal skills of primary care physicians? A systematic review. *Bmc Health Services Research*, 8, 10. doi: 17910.1186/1472-6963-8-179
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, N.J.: L. Erlbaum Associates.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.
- Fallowfield, L., Jenkins, V., Farewell, V., & Solis-Trapala, I. Enduring impact of communication skills training: results of a 12-month follow-up. *Br J Cancer*, 89(8), 1445-1449.
- Forsetlund L, Bjørndal A, Rashidian A, Jamtvedt G, O'Brien MA, Wolf F, Davis D, Odgaard-Jensen J, Oxman AD. (2009). Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 2. Art. No.: CD003030. DOI: 10.1002/14651858.CD003030.pub2.
- Frostholm, L., Fink, P., Oernboel, E., Christensen, K. S., Toft, T., Olesen, F., et al. (2005). The Uncertain Consultation and Patient Satisfaction: The Impact of Patients' Illness Perceptions and a Randomized Controlled Trial on the Training of Physicians' Communication Skills. *Psychosom Med*, 67(6), 897-905. doi: 10.1097/01.psy.0000188403.94327.5b
- Helitzer, D. L., LaNoue, M., Wilson, B., de Hernandez, B. U., Warner, T., & Roter, D. A (2011). Randomized controlled trial of communication training with primary care providers to improve patient-centeredness and health risk communication. *Patient Education and Counseling*, 82(1), 21-29.
- Hintze, J. L. (2005). *PASS User's Guide: Pass 2005 Power Analysis and Sample Size for Windows. 2005 Version*. Kaysville Utah: NCSS.
- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, 351(1), 13-22.
- Joos S.K., Hickman D.H., Gordon G.H., & Baker L.H. (1996). Effects of a physician communication intervention on patient care outcomes. *Journal of General Internal Medicine*, 11(3), 147-155.
- Kim Y.M., Figueroa M.E., Martin A., Silva R., Acosta S.F., Hurtado M., Richardson P., & Kols A. (2002). Impact of supervision and self-assessment on doctor-patient communication in rural Mexico. *International Journal for Quality in Health Care*, 14(5), 359-67.

- Langewitz, W. A., Eich, P., Kiss, A., & Wossmer, B. (1998). Improving communication skills--a randomized controlled behaviorally oriented intervention study for residents in internal medicine. *Psychosom Med*, 60(3), 268-276.
- Levinson W. & Roter D. (1993). The effects of two continuing medical education programs on communication skills of practicing primary care physicians. *Journal of General Internal Medicine*, 8(6), 318-24.
- Maguire, P., & Pitceathly, C. (2002). Key communication skills and how to acquire them. (Clinical review). *British Medical Journal*, 325(7366), 697(694).
- Merckaert, Libert, Razavi, Darius (2005). Communication skills training in cancer care: where are we and where are we going? *Current Opinion in Oncology*. 17(4):319-330.
- Rao, J. K., Anderson, L. A., Inui, T. S., & Frankel, R. M. (2007). Communication interventions make a difference in conversations between physicians and patients - A systematic review of the evidence. *Medical Care*, 45(4), 340-349.
- Raudenbush, S. W., & Liu, X. (2000). Statistical power and optimal design for multisite randomized trials. *Psychological Methods*, 5(2), 199-213.
- Roter, D. L., Larson, S., Shinitzky, H., Chernoff, R., Serwint, J. R., Adamo, G., et al. (2004). Use of an innovative video feedback technique to enhance communication skills training. *Medical Education*, 38(2), 145-157. doi: 10.1046/j.1365-2923.2004.01754.x
- Roter, D. L., Hall, J. A., Kern, D. E., Barker, L. R., Cole, K. A., & Roca, R. P. (1995). Improving Physicians' Interviewing Skills and Reducing Patients' Emotional Distress: A Randomized Clinical Trial. *Arch Intern Med*, 155(17), 1877-1884. doi: 10.1001/archinte.1995.00430170071009
- Wissow, L. S., Gadowski, A., Roter, D., Larson, S., Brown, J., Zachary, C., et al. (2008). Improving child and parent mental health in primary care: a cluster-randomized trial of communication skills training. (Report). *Pediatrics*, 121(2), 266(210).

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE S	PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00002	3. EFFECTIVE DATE 03-May-2011	4. REQUISITION/PURCHASE REQ. NO. SEE SCHEDULE	5. PROJECT NO.(If applicable)		
6. ISSUED BY USA MED RESEARCH ACQ ACTIVITY 820 CHANDLER ST FORT DETRICK MD 21702-5014	CODE W81XWH	7. ADMINISTERED BY (If other than item 6) USA MED RESEARCH ACQ ACTIVITY ATTN: CRAIG ANDERSON 301-619-2702 CRAIG.E.ANDERSON@AMEDD.ARMY.MIL FORT DETRICK MD 21702		CODE W81XWH	
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) VANDERBILT UNIVERSITY, THE 110 21ST AVENUE S STE 937 NASHVILLE TN 37203-2416			9A. AMENDMENT OF SOLICITATION NO. 7		
			9B. DATED (SEE ITEM 11)		
			10A. MOD. OF CONTRACT/ORDER NO.		

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION 00010 - SOLICITATION CONTRACT FORM

CLIN 0001

The CLIN extended description has changed from Vanderbilt University - Cooperative Agreement # 09090006.PI: Dr. Susan D. KelleyFunding for Cooperative Agreement Proposal # 09090006; MOMRP/RAD III FY08 Congressional Special Interest, Military Operational Medicine Research Program (MOMRP).Period of Performance: 30 September 2009 - 31 October 2011 (Research ends 29 September 2011).90-Day Pre-Contract Costs are authorized for payment **TO** Vanderbilt University - Cooperative Agreement # 09090006.PI: Dr. Susan D. KelleyFunding for Cooperative Agreement Proposal # 09090006; MOMRP/RAD III FY08 Congressional Special Interest, Military Operational Medicine Research Program (MOMRP).Period of Performance: 30 September 2009 - 31 October 2012 (Research ends 29 September 2012).90-Day Pre-Contract Costs are authorized for payment.

DELIVERIES AND PERFORMANCE

The following Delivery Schedule item for CLIN 0001 has been changed from:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
POP 30-SEP-2009 TO 31-OCT-2011	N/A	USA MED RESEARCH MAT CMD JUANITA LIVINGSTON 504 SCOTT STREET FORT DETRICK MD 21702-5012 FOB: Destination	W23RYX

To:

DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
POP 30-SEP-2009 TO 31-OCT-2012	N/A	PR W03J USA MED RESEARCH MAT CMD JUANITA LIVINGSTON 504 SCOTT STREET FORT DETRICK MD 21702-5012 FOB: Destination	W23RYX

The following have been modified:

PI NAME/PROPOSAL TITLE

Vanderbilt University - Cooperative Agreement # 09090006.

PI: Dr. Susan D. Kelley; 615-343-1654; susan.d.kelley@vanderbilt.edu

Proposal Title: "Improving Deployment-Related Primary Care Provider Assessments of PTSD and Mental Health Conditions."

Period of Performance: 30 September 2009 - 31 October 2012 (Research ends 29 September 2012).

(End of Summary of Changes)

2012 SCOPE OF WORK MODIFICATION—EXECUTED 14-MAY-12

**IMPROVING DEPLOYMENT - RELATED PRIMARY CARE PROVIDER
ASSESSMENTS OF PTSD AND MENTAL HEALTH CONDITIONS**

IMPROVING DEPLOYMENT-RELATED PRIMARY CARE PROVIDER ASSESSMENTS OF PTSD AND
OTHER MENTAL HEALTH CONDITIONS

Award #: W81XWH-09-2-0172

Dr. Susan Douglas Kelley & Dr. Len Bickman (Vanderbilt University)

Dr. Sarah Mustillo (Purdue University)

LCDR Nicole Frazer & Ms. Melissa Fraine (FHP&R)

AMENDMENT TO THE REVISED RESEARCH PLAN FOR REVIEW AND APPROVAL

With No-Cost Extension Year Requested

February 27, 2012

OVERVIEW

Due to various factors described further below, data collection totals resulting from the three site visits already completed do not provide enough data for sufficient power to find effects as per the previously approved research design. This amendment proposes to (1) increase the number of site visits to four, and (2) strengthen the research design to incorporate a naturally occurring control group of providers who do not participate in the training workshop. In addition, continued delays have prevented Purdue University from receiving the data necessary to complete planned analyses to meet their SOW.

Because of the increased time necessary for data collection we are requesting a no-cost extension of the award until SEP 2013. The scope of work (SOW) remains consistent with the revised research plan approved by MRMC in May, 2011. These additional changes would simply allow Vanderbilt and Purdue to complete the full SOW described therein. The government sponsor, Force Health Protection and Readiness (FHP&R), and the coordinating agency, Office of the Surgeon General of the Army (OTSG) are in full support of the proposed amendment. **The proposed amendment can be accomplished with no additional cost to MRMC.**

JUSTIFICATION

The previously approved research design planned for 40 Soldier surveys to be collected before and after the training workshop for each participating provider. This model required a minimum of 10-12 providers with adequate data collection to have enough power to find an effect of the training workshop. Training workshops would be provided at two to three site visits with accompanying data collection. The study has already been implemented at three sites (Ft Campbell, Ft Stewart, and Ft Carson), as described in our 9th quarterly report. We were not able to collect sufficient data from Soldiers at any of the site visits conducted so far.

Lower Than Expected Soldier Participation

Data has been collected from 19 providers who participated in the training workshops, but none of these had 40 data points before and after the training. In fact, only 1 provider had over 35 Soldiers complete a survey both before and after the workshop. The lower than expected data collection is due to at least two factors.

1. Estimates of the number of Soldiers going through the installation for the PDHRA interview are unreliable. This number was over-estimated every day we collected data. (e.g., Ft Campbell projected 175 per day, but only averaged 138 per day; Ft Carson projected 700 total PDHRAs, but only 472 were completed).
2. Soldiers had to wait an excessive amount of time to see a provider. These delays negatively impacted their participation in the study and contributed to lower than expected response rates.

All Providers Participated in Data Collection but Did Not Participate in the Training Workshop

Although it had been anticipated that all providers present on the day the workshop was delivered would participate in the workshop, this was not the case. At all three sites, a subset of providers was chosen to participate in the training workshop by site leadership. The reason given was typically to allow for continued PDHRA flowthrough during the time of the workshop. To ease planning and logistics involved with data collection pre- and post-PDHRA, all sites chose to have all providers participate in data collection after they had consented to participate. Thus, in addition to the 19 providers who participated in the training workshop, data are available from 16 providers who did not participate in the workshop. Notably all providers who were eligible consented to participate in the study.

The three tables below present the actual data collection totals for the Soldier survey and the Provider survey by provider at each installation.

Fort Campbell Data Collection Totals

Provider Name	Provider 3-qx surveys (including all completed by providers)			Soldier Survey (from iPad, including only surveys matched to a Provider 3-item survey)		
	Pre-Workshop	Post-Workshop	Total	Pre-Workshop	Post-Workshop	Total
Provider 1*	31	27	58	16	15	31
Provider 2	38	82	120	16	40	56
Provider 3*	57	67	124	39	40	79
Provider 4*	25	15	40	14	7	21
Provider 5*	47	53	100	26	28	54
Provider 6	57	22	79	18	18	36
Provider 7	23	57	80	13	23	36
Provider 8*	22	38	60	17	26	43
Provider 9*	18	8	26	12	6	18
Unmatched Surveys	n/a	n/a	n/a	3	9	12
TOTAL Surveys at Fort Campbell	318	369	687	174	212	386

* Participated in training workshop

Fort Stewart Data Collection Totals

	Provider 3-qx surveys (including all completed by providers)			Soldier Survey (from the iPad, including only surveys matched to a Provider 3-item survey)		
Provider Name	Pre-Workshop	Post-Workshop	Total	Pre-Workshop	Post-Workshop	Total
Provider 1*	2	21	23	1	4	5
Provider 2	0	25	25	0	13	13
Provider 3*	8	86	94	3	31	34
Provider 4	5	0	5	5	0	5
Provider 5*	12	132	144	4	39	43
Provider 6*	7	88	95	5	32	37
Provider 7*	34	30	64	19	20	39
Provider 8*	2	22	24	2	9	11
Provider 9*	33	25	58	10	8	18
Provider 10*	3	27	30	1	15	16
Provider 11*	2	69	71	2	24	26
Provider 12	0	1	1	0	0	0
UNMATCHED SURVEYS	n/a	n/a	n/a	3	13	16
TOTAL Surveys at Fort Stewart	108	505	634	55	208	263

* Participated in training workshop. Yellow highlight indicates less than 5 surveys collected.

Fort Carson Data Collection Totals

Provider Name	Provider 3-qx surveys (including all completed by providers)			Soldier Survey (from the iPad, including only surveys matched to a Provider 3-item survey)		
	Pre-Workshop	Post-Workshop	Total	Pre-Workshop	Post-Workshop	Total
Provider 1	1	4	5	0	0	0
Provider 2*	62	25	87	19	4	23
Provider 3	4	8	12	3	2	5
Provider 4	29	12	41	13	5	18
Provider 5*	57	26	83	11	4	15
Provider 6*	35	18	53	10	8	18
Provider 7	6	25	31	1	3	4
Provider 8	2	13	15	1	6	7
Provider 9	4	4	8	1	0	1
Provider 10	1	5	6	0	1	1
Provider 11	2	16	18	1	4	5
Provider 12	0	6	6	0	4	4
Provider 13*	53	26	79	23	11	34
Provider 14	7	18	25	2	5	7
UNMATCHED SURVEYS	n/a	n/a	n/a	5	5	10
TOTAL Surveys at Fort Carson	263	206	469	90	62	152

* Participated in training workshop. Yellow highlight indicates less than 5 surveys collected.

Although Soldier participation was expected to average around 50%, in actuality it ranged from 12-32% at all sites. The table below summarizes the total data collection for all three sites. The average number of matched surveys (i.e., presence of both a Soldier survey and a provider survey) collected per provider per day ranged from 3-6.

Summary of Data Collection To Date by Installation

	Ft Campbell	Ft Stewart	Ft Carson
days of data collection	7	7	4
number of providers*	9	12	14
estimated flowthrough	1225 (175 per day)	2170 (310 per day)	568 (142 per day)
actual flowthrough	966 (138 per day)	804 (115 per day)	472 (118 per day)
provider 3-qx surveys collected	687	634	469
matched SM surveys collected	386	263	152
% SM participation based on estimated flowthrough	32	12	27
Average # matched SM surveys per day per provider	6	3	3
*who completed at least one 3-qx survey; fewer providers have adequate pre/post data and participated in the workshop			

Continued delays in receiving VA data

As of 27 FEB 2012, Purdue has still not received the VA data necessary to complete their proposed analysis. The key innovative aspect of Purdue's subcontract is the merging of PDHA/PDHRA data, health care encounter data from AFHSC, and health care encounter data from the National VA Data Repository to examine risk factors associated with the development of PTSD in post-deployment OIF/OEF Service members. To date, Purdue has received the PDHA/PDHRA and AFHSC health care encounter data from Vanderbilt, but has yet to receive the national VA data. Researchers' access to national VA data with real SSNs requires submission of a request packet to National Data Systems (NDS) with a completed form 9957 and local approvals. Purdue's VA collaborator submitted all necessary forms, approvals, and signatures early in 2011 and received permission to access the database in August, 2011. At that time, there was an apparent change in the approvals procedure in which data requests were required to be routed through VHA Privacy, VHA Security, and the VHA Office of Research and Development (ORD). The project has received approvals from Privacy and Security in October, 2011, but is still waiting on ORD approval.

PROPOSED STUDY CHANGES FOR APPROVAL BY MPMC

Aim 2 Design and Methodology

Currently, we have a single-group design with pre- and post-workshop measures and time-series data (secondary data, e.g., PDHRA, health care encounters). This includes only providers who participate in the workshop and emphasizes the number of Soldiers over the number of providers. The proposed quasi-experimental design uses all collected data and allows us to have fewer data points per provider (i.e., minimum of 5 matched provider 3-question surveys and Soldier surveys).

Our proposed quasi-experiment includes two groups, experimental (participated in the workshop) and control (did not participate in the workshop). Based on current data collected we have 11 providers in the experimental group with adequate data (5 or more matched Soldier and provider surveys) and 4 providers in the control group with adequate data. The benefits of this design are that it controls for major threats to validity such as unknown effects of time or other events, and it increases statistical power by increasing the total number of providers, which allows us to collect fewer data points (i.e., Soldier-specific data) from each provider. Limitations of the design are that providers are not randomized to groups (thus, the quasi-experiment), and that the two groups are currently unbalanced (11 and 4), which decreases power.

Power Analysis

The chart below shows the power analysis we used to determine the average number of providers in each group (control and experimental) we would need to show medium effects of the training. In previously collected PDHRA data, the intraclass correlation coefficient (ICC) is 0.33 for the effect of provider variance on whether any referral was made, and 0.56 for the effect of provider variance on whether any behavioral health concerns were documented on the PDHRA. Therefore, we estimate that provider variance is fairly robust necessitating an anticipated cross-wave r (left-hand column) between 0.30 and 0.55. We then targeted the columns for medium size effects (ranging from 0.50 to 0.70).

cross-wave r	N per Group for Effect size: 0.40	N per Group for Effect size: 0.50	N per Group for Effect size: 0.60	N per Group for Effect size: 0.70	N per Group for Effect size: 0.80
0.10	14	9	6	4	3
0.15	17	11	8	6	4
0.20	21	13	9	7	5
0.25	24	15	11	8	6
0.30	28	18	12	9	7
0.35	31	20	14	10	8
0.40	35	22	15	11	9
0.45	38	25	17	13	10
0.50	42	27	19	14	10
0.55	45	29	20	15	11
0.60	49	31	22	16	12
0.65	52	34	23	17	13

To create equal-sized groups with adequate power to detect intermediate effect sizes we need 15 additional providers – 4 in the experimental group and 11 in the control group. Each provider needs to

complete 15-20 PDHRA interviews before and after the training (or 30-40 interview total for the control group), and 30% of the Soldiers they interview must agree to participate in the Soldier survey. This is consistent with participation at prior site visits.

We are targeting Ft Bliss, TX, for the additional site visit. This selection is based on the presence of a large number of potential participants (up to 20 providers), and a large number of Soldiers expected to complete the PDHRA process in MAR 2012 (200-250 Soldiers per day). The PDHRA administrators at Ft Bliss are supportive, and OTSG has issued a tasking order and is coordinating a letter of support from the installation commander. If approved, we expect the site visit to occur in MAR 2012. We expect the site visit to last about 10 days to ensure adequate data collection if flow through or Soldier participation is lower than expected.

Expected Data Requests

Army

The data request to the Army will be an amendment to the existing data request to include data for the intervention (i.e., for Soldiers who completed PDHRAs within 6 months before to 4 weeks after the intervention). Due to the length of time between completed site visits and the visit planned for MAR 2012, we will request these data in two installments. The first request will include data from 20 APR 2011 to 20 JAN 2012, and the second request will include data from 21 JAN 2012 thru approximately 08 JUN 2012. This amendment has been submitted as of 25 JAN 2012.

Armed Forces Health Surveillance Center (AFHSC)

The data use agreement for these data has been approved. Like the Army data request, the AFHSC data request will occur in two installments, including the same date ranges as for the Army request.

Analytic Models

All hypotheses and research questions will remain the same, with the addition of analytic models that provide comparisons of the experimental and control groups. For these analyses, segmented (or piecewise) linear regression analyses will be conducted with separate slopes of outcome for the pre- and post-intervention period. This type of regression controls for the baseline trend by testing the change in level and slope. The dependent variables will be the outcomes of interest (provider concerns, referrals, self-efficacy and Soldier disclosure and attitudes) and the independent variables will be time from the start of the observational period, whether the observation is pre- or post- intervention, and time since the intervention. The three levels of the regression will be 1) slope, 2) time within provider, and 3) providers within site. The analyses will account for clustering of Soldiers within providers and within installations.

In addition, potential moderating variables from the PDHA (e.g., pre-existing mental health problems, combat exposure), provider background form (e.g., professional background, demographics, self-efficacy in patient-centered communication), PDHRA program manager interview (e.g., typical PDHRA processes, existing training programs, etc.), and analysis of secondary data (e.g., provider completion of the NDAA online training and related test scores) will be incorporated into the analytic models. These moderating variables may affect the strength of the relationship between the independent and dependent variables; therefore adding them to the model will allow us to better account for the variance attributable to the intervention itself.

IMPACT OF NO-COST EXTENSION YEAR

Due to the need for an additional site visit and the delay in Purdue receiving the VA data, we propose a no-cost extension year until SEP 2013. The intent of this extension is to allow completion of the SOW outlined in the revised research plan approved by MRMC in May 2011.

With the additional site visit, all data will not be received by Vanderbilt until June 2012 at earliest. It is more likely that final data will not be received by Vanderbilt until July or August 2012 given the need for multiple data requests and coordination of data retrieval as described above. In addition, access to the AFHSC data will expire at the end of the contract period in the fall of 2012. The additional year would allow time for Vanderbilt to receive data related to all four study sites, clean and merge datasets, complete analyses with data from all four sites, write manuscripts and a final report.

While waiting for access to the VA system, Purdue has been analyzing the PDHA/PDHRA and AFHSC health care encounter data. Purdue is currently writing 2 manuscripts that address the original research question with the limited data they have. However, because they have not received the VA data yet, Purdue will be unable to complete the project as specified in their statement of work by the end of the current project period unless they have additional time. One additional year would allow Purdue time to receive the VA data, clean, code and merge it, complete analyses, and write manuscripts and a final report.

Annual Report: Contract # W81XWH-09-2-0172

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE S	PAGE OF PAGES 1 11	
2. AMENDMENT/MODIFICATION NO. P00004		3. EFFECTIVE DATE 11-May-2012	4. REQUISITION/PURCHASE REQ. NO. SEE SCHEDULE		5. PROJECT NO.(If applicable)
6. ISSUED BY US ARMY MEDICAL RESEARCH ACQUISITION ACT DIRECTOR 820 CHANDLER STREET FORT DETRICK MD 21702-5014		CODE W81XWH	7. ADMINISTERED BY (If other than item 6) US ARMY MEDICAL RESEARCH ACQUISITION ACT ATTN: ROBERT L. JONES III ROBERT.L.JONESIII@AMEDD.ARMY.MIL FORT DETRICK MD 21702		CODE W81XWH
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) VANDERBILT UNIVERSITY, THE 110 21ST AVENUE S STE 937 NASHVILLE TN 37203-2416			9A. AMENDMENT OF SOLICITATION NO.		
			9B. DATED (SEE ITEM 11)		
			X 10A. MOD. OF CONTRACT/ORDER NO. W81XWH-09-2-0172		
			X 10B. DATED (SEE ITEM 13) 23-Sep-2009		
CODE 5E694		FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS					
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (If required)					
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.					
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.					
X B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).					
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:					
D. OTHER (Specify type of modification and authority)					
E. IMPORTANT: Contractor <input checked="" type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: rjones124157 To change the GOR information and update the PI information					
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) AARON J. WADE / ACCOUNT MANAGER TEL: 301-619-8397 EMAIL: aaron.wade@amedd.army.mil		
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)		15C. DATE SIGNED		16C. DATE SIGNED 14-May-2012	
		16B. UNITED STATES OF AMERICA BY <i>Aaron J. Wade</i> (Signature of Contracting Officer)			

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION 00010 - SOLICITATION CONTRACT FORM

The following have been added by full text:

DELIVERY INFORMATION

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	POP 30-SEP-2009 TO 31-OCT-2013	N/A	PR W03J USA MED RESEARCH MAT CMD JUANITA LIVINGSTON 504 SCOTT STREET FORT DETRICK MD 21702-5012 FOB: Destination	W23RYX
000101	POP 30-SEP-2009 TO 31-OCT-2013	N/A	(SAME AS PREVIOUS LOCATION) FOB: Destination	W23RYX

PI NAME/PROPOSAL TITLE

Vanderbilt University - Cooperative Agreement # 090900006.

PI: Dr. Susan D. Kelley; 615-343-1827; susan.d.kelley@vanderbilt.edu

Proposal Title: "Improving Deployment-Related Primary Care Provider Assessments of PTSD and Mental Health Conditions."

Period of Performance: 30 September 2009 - 31 October 2013 (Research ends 29 September 2013).

The following have been deleted:

DELIVERY INFORMATION

PI NAME/PROPOSAL TITLE

SECTION 00700 - CONTRACT CLAUSES

The following have been added by full text:

A. This award is made under the authority of 31 U.S.C. 6305 and 10 U.S.C. 2358. The recipient's statement of work on pages 6 through 18 of the proposal dated 25 March 2009 and the revised budget dated 21 September 2009 on pages 1 through 23 are incorporated herein by reference. The Catalog of Federal Domestic Assistance Number relative to this award is CFDA 12.420.

GOVERNMENT INTERACTION (DEC 2008)(USAMRAA)

The active participants in this award are the U.S. Army Medical Research and Materiel Command (USAMRMC) and its laboratories identified herein through the U.S. Army Medical Research Acquisition Activity (USAMRAA). The following USAMRMC laboratory will be the focus of cooperative research conducted under this agreement:

- Ft. Campbell, Ky.
- Force Health Protection & Readiness (FHR&P).

B. ACCEPTANCE OF AWARD. The recipient is not required to countersign this assistance award. In case of disagreement, the recipient shall notify the Grants Officer and not assess the award any costs until such disagreement(s) is resolved.

C. MAXIMUM OBLIGATION (SEP 2006) (USAMRAA)

The maximum obligation for support of the project will not exceed the amount specified in the award, as amended. USAMRAA does not amend assistance agreements to provide additional funds for such purposes as reimbursement for unrecovered indirect costs resulting from the establishment of final negotiated rates or for increases in salaries, fringe benefits and other costs.

D. TERMS AND CONDITIONS: The recipient agrees to the General Terms and Conditions of the Federal Demonstration Partnership, Phase V, dated July 1, 2008 and Department of Army – Agency Specific Requirements. Modifications to the General Terms and Conditions dated July 1, 2008 are modified as indicated below.

1. PATENTS AND INVENTIONS (DEC 2001) (USAMRAA)

a. The recipient shall use the Interagency Edison through the National Institutes of Health Commons (<http://www.iedison.gov/>) for filing of Patent Application and Invention Disclosure. Negative reports are required and shall be submitted on a DD Form 882 to the Grants Officer. (DD Form 882 can be located on web site <http://www.usamraa.army.mil>).

b. Invention reports are due annually and at the end of the period of the award. Annual reports are due 30 days after the anniversary date of the award and final reports are due 30 days after the expiration of the award. The award will NOT be closed out until all invention reporting requirements are met.

2. TECHNICAL REPORTING REQUIREMENTS (DEC 2008) (USAMRAA)

Format Requirements for Annual/Final Reports

a. Annual reports must provide a complete summary of the research accomplishments to date with respect to the approved Statement of Work. Journal articles can be substituted for detailed descriptions of specific aspects of the research, but the original articles must be attached to the report as an appendix and appropriately referenced in the text. The importance of the report to decisions relating to continued support of the research cannot be over-emphasized. An annual report shall be submitted within 30 calendar days of the anniversary date of the award for the preceding 12 month period. If the award period of performance is extended by the Grants Officer, then an annual report must still be submitted within 30 days of the anniversary date of the award. A final report will be due upon completion of the extended performance date that describes the entire research effort.

b. A final report summarizing the entire research effort, citing data in the annual reports and appended publications shall be submitted at the end of the award performance period. The final report will provide a complete reporting of the research findings. Journal publications can be substituted for detailed descriptions of specific aspects of the research, but an original copy of each publication must be attached as an appendix and appropriately referenced in the text. All final reports must include a bibliography of all publications and meeting abstracts and a list of personnel (not salaries) receiving pay from the research effort.

Although there is no page limitation for the reports, each report shall be of sufficient length to provide a thorough description of the accomplishments with respect to the approved Statement of Work. Submission of the report in electronic format (PDF or Word file only), shall be submitted to <https://ers.amedd.army.mil>.

All reports shall have the following elements in this order

FRONT COVER: Sample front cover provided at <https://mrmc.amedd.army.mil/rripindex.asp>. The Accession Document (AD) Number should remain blank.

STANDARD FORM 298: Sample SF 298 provided at <https://mrmc.amedd.army.mil/rripindex.asp>. The abstract in Block 13 must state the purpose, scope, major findings and be an up-to-date report of the progress in terms of results and significance. Subject terms are keywords that may have previously assigned to the proposal abstract or are keywords that may be significant to the research. The number of pages shall include all pages that have printed data (including the front cover, SF 298, table of contents, and all appendices). Please count pages carefully to ensure legibility and that there are no missing pages as this delays processing of reports. Page numbers should be typed: please do not hand number pages.

TABLE OF CONTENTS: Sample table of contents provided at <https://mrmc.amedd.army.mil/rripindex.asp>.

INTRODUCTION: Narrative that briefly (one paragraph) describes the subject, purpose and scope of the research.

BODY: This section of the report shall describe the research accomplishments associated with each task outlined in the approved Statement of Work. Data presentation shall be comprehensive in

providing a complete record of the research findings for the period of the report. Provide data explaining the relationship of the most recent findings with that of previously reported findings. Appended publications and/or presentations may be substituted for detailed descriptions of methodology but must be referenced in the body of the report. If applicable, for each task outlined in the Statement of Work, reference appended publications and/or presentations for details of result findings and tables and/or figures. The report shall include negative as well as positive findings. Include problems in accomplishing any of the tasks. Statistical tests of significance shall be applied to all data whenever possible. Figures and graphs referenced in the text may be embedded in the text or appended. Figures and graphs can also be referenced in the text and appended to a publication. Recommended changes or future work to better address the research topic may also be included, although changes to the original Statement of Work must be approved by the Army Grants Officer's Representative. This approval must be obtained prior to initiating any change to the original Statement of Work.

KEY RESEARCH ACCOMPLISHMENTS: Bulleted list of key research accomplishments emanating from this research.

REPORTABLE OUTCOMES: Provide a list of reportable outcomes that have resulted from this research to include:

manuscripts, abstracts, presentations; patents and licenses applied for and/or issued; degrees obtained that are supported by this award; development of cell lines, tissue or serum repositories; informatics such as databases and animal models, etc.; funding applied for based on work supported by this award; employment or research opportunities applied for and/or received based on experience/training supported by this award.

CONCLUSION: Summarize the results to include the importance and/or implications of the completed research and when necessary, recommend changes on future work to better address the problem. A "so what section" which evaluates the knowledge as a scientific or medical product shall also be included in the conclusion of the report.

REFERENCES: List all references pertinent to the report using a standard journal format (i.e. format used in *Science*, *Military Medicine*, etc.).

APPENDICES: Attach all appendices that contain information that supplements, clarifies or supports the text. Examples include original copies of journal articles, reprints of manuscripts and abstracts, a curriculum vitae, patent applications, study questionnaires, and surveys, etc.

Pages shall be consecutively numbered throughout the report. DO NOT RENUMBER PAGES IN THE APPENDICES.

Mark all pages of the report which contain proprietary or unpublished data that should be protected by the U.S. Government. REPORTS NOT PROPERLY MARKED FOR LIMITATION WILL BE DISTRIBUTED AS

APPROVED FOR PUBLIC RELEASE. It is the responsibility of the Principal Investigator to advise the U.S. Army Medical Research and Materiel Command when restricted limitation assigned to a document can be downgraded to Approved for Public Release. DO NOT USE THE WORD "CONFIDENTIAL" WHEN MARKING DOCUMENTS.

3. PAYMENTS

ADVANCE PAYMENTS AND FULL FUNDING (DEC 2008) (USAMRAA)

a. Payments. Advance payments will be made to the recipient. Questions relative to payment issues involving Defense Finance and Accounting Service shall be directed to [Craig E. Anderson @ 301-619-2702 or craig.e.anderson@amedd.army.mil](mailto:Craig.E.Anderson@amedd.army.mil).

b. Electronic Funds Transfer. All advance payments to the recipient will be made by electronic funds transfer (EFT). The recipient shall contact the Defense Finance and Accounting System (DFAS) named on the face page of this award to make arrangements for EFT. Failure to do so may result in nonpayment.

c. If the recipient fails to perform, the Grants Officer shall notify DFAS in writing to withhold payments.

d. Advance Payment Schedule

Year One: \$690,431.00

<u>Amount</u>	<u>On or About</u>
\$172,607.75	Upon execution of this award
\$172,607.75	30 December 2009
\$172,607.75	30 March 2010
\$172,607.75	30 June 2010

Year Two: \$681,502.00

<u>Amount</u>	<u>On or About</u>
\$170,375.50	30 September 2010
\$170,375.50	30 December 2010
\$170,375.50	30 March 2011
\$170,375.50	30 June 2011

e. Financial Reporting Requirements: The recipient shall submit on a quarterly basis a Standard Form 272, Federal Cash Transactions Report (form available on web site <http://www.usamraa.army.mil>). Each report shall be completed in U.S. dollars and submitted to the U.S. Army Medical Research Acquisition Activity, ATTN: MCMR-AAA-W, 820 Chandler Street, Fort Detrick MD 21702-5014 in accordance with the following schedule:

<u>Period Covered</u>	<u>Due Date</u>
Jan - Mar	15 Apr
Apr - Jun	15 Jul
Jul - Sep	15 Oct
Oct - Dec	15 Jan

f. Interest Bearing Account. Unless exempted by applicable Treasury-State agreements in accordance with the Cash Management Improvement Act (CMIA) (31 U.S.C. 3335), the recipient shall deposit all advance payments in an interest bearing account. Interest over the amount of \$250 per year shall be remitted annually to the Department of Health and Human Services, Payment Management System, P.O. Box 6021, Rockville, MD 20852. A copy of the transmittal letter stating the amount of interest remitted shall be sent to the U.S. Army Medical Research Acquisition Activity, ATTN: MCMR-AAA-W, 820 Chandler Street, Fort Detrick, MD 21702-5014.

4. PROHIBITION OF USE OF HUMAN RESEARCH (JAN 2007) (USAMRAA)

**** PROHIBITION – READ FURTHER FOR DETAILS ****

Research under this award involving the use of human subjects, to include the use of human anatomical substances and/or human data, may not begin until the U.S. Army Medical Research and Materiel Command's Office of Research Protections, Human Research Protections Office (HRPO) approves the protocol. Written approval to begin research or subcontract for the use of human subjects under the applicable protocol proposed for this award will be issued from the US Army Medical Research and Materiel Command, HRPO, under separate letter to the recipient. A copy of this approval will be provided to the US Army Medical Research Acquisition Activity for the official file. Non-compliance with any provision of this clause may result in withholding of funds and or the termination of the award.

5. PROHIBITION OF USE OF LABORATORY ANIMALS (JAN 2007) (USAMRAA)

**** PROHIBITION – READ FURTHER FOR DETAILS ****

Notwithstanding any other provisions contained in this award or incorporated by reference herein, the recipient is expressly forbidden to use or subcontract for the use of laboratory animals in any manner whatsoever without the express written approval of the US Army Medical Research and Materiel Command, Animal Care and Use Office (ACURO). The recipient will receive written approval to begin research under the applicable protocol proposed for this award from the US Army Medical Research and Materiel Command, ACURO, under separate letter. A copy of this approval will be provided to the US Army Medical Research and Acquisition Activity for the official file. Non-compliance with any provision of this clause may result in the termination of the award.

6. PROHIBITION OF USE OF HUMAN CADAVERS (JAN 2007) (USAMRAA)

**** PROHIBITION – READ FURTHER FOR DETAILS****

Research under this award using human cadavers may not begin until the U.S. Army Medical Research and Materiel Command's Office of Research Protections, Human Research Protections Office (HRPO) approves the protocol. Written approval to begin research or subcontract for the use of human cadavers

under the applicable protocol proposed for this award will be issued from the US Army Medical Research and Materiel Command, HRPO, under separate letter to the recipient. A copy of this approval will be provided to the US Army Medical Research Acquisition Activity for the official file. Non-compliance with any provision of this clause may result in withholding of funds and or the termination of the award.

7. SUPPORTING INFORMATION (APR 2008) (USAMRAA)

Information such as subawards, consultant agreements, vendor quotes, and personnel work agreements may be required in order to support proposed costs or to determine the employment status of personnel under the assistance agreement. The Government's receipt of this information does not constitute approval or acceptance of any term or condition included therein. The terms and conditions of the assistance agreement take precedence over any term or condition included in supporting information.

8. TRAFFICKING VICTIMS PROTECTION ACT (May 2008) (USAMRAA)

Trafficking in persons.

a. Provisions applicable to a recipient that is a private entity.

I. You as the recipient, your employees, subrecipients under this award, and subrecipients' employees may not--

i. Engage in severe forms of trafficking in persons during the period of time that the award is in effect;

ii. Procure a commercial sex act during the period of time that award is in effect; or

iii. Use forced labor in the performance of the award or subawards under the award.

2. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if you or a subrecipient that is a private entity--

i. Is determined to have violated a prohibition in paragraph a.1 of this award term; or

ii. Has an employee who is determined by the agency official authorized to terminate the award to have violated a prohibition in paragraph a.1 of this award term through conduct that is either--

A. Associated with performance under this award; or

B. Imputed to you or the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR 180, "OMB Guidelines to Agencies on Government wide Debarment and Suspension (Nonprocurement)," as implemented by our agency at 2 CFR part 1125.

b. Provision applicable to a recipient other than a private entity. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if a subrecipient that is a private entity--

I. Is determined to have violated an applicable prohibition in paragraph a.1 of this award term;
or

2. Has an employee who is determined by the agency official authorized to terminate the award to have violated an applicable prohibition in paragraph a.1 of this award term through conduct that is either--

- i. Associated with performance under this award;
- ii. Imputed to the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR part 180, "OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)," as implemented by our agency at 2 CFR part 1125.

c. Provision applicable to any recipient.

I. You must inform us immediately of any information you receive from any source alleging a violation of a prohibition in paragraph a.1 of the award term.

2. Our right to terminate unilaterally that is described in paragraph a.2. or b. of this section:

- i. Implements section 106(g) of the Trafficking Victims Protection Act of 2000 (TVPA), as amended (22 U.S.C. 7104(g)), and
- ii. Is in addition to all other remedies for noncompliance that are available to us under this award.

3. You must include the requirements of paragraph a.1 of this award term in any subaward you make to a private entity.

d. Definitions. For the purpose of this award term:

I. "Employee" means either:

- i. An individual employed by you or a subrecipient who is engaged in the performance of the project or program under this award; or
- ii. Another person engaged in the performance of the project or program under this award and not compensated by you including, but not limited to, a volunteer or individual whose services are contributed by a third party as an in-kind contribution toward cost sharing or matching requirements.

2. "Forced labor" means labor obtained by any of the following methods: the recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.

3. "Private entity":

- i. Means any entity other than a State, local government, Indian Tribe, or foreign public entity, as those terms are defined in 2 CFR 175.25.
- ii. Includes:

A. A nonprofit organization, including any nonprofit institution of higher education, hospital, or tribal organization other than one included in the definition of Indian Tribe at 2 CFR 175.25(b).

B. A for-profit organization.

4. "Severe forms of trafficking in persons," "commercial sex act," and "coercion" have the meanings given at section 103 of the TVPA, as amended (22 U.S.C. 7102).

9. OPTION TO EXTEND THE TERM OF THE ASSISTANCE AGREEMENT (MAR 2008) (USAMRAA)

a. The Government may extend the term of this assistance agreement by issuance of a modification that provides additional funding for continued performance of the research effort. The modification will be issued prior to the expiration date of the assistance agreement. Inclusion of this term does not commit the Government to an extension.

b. Exercise of this option is contingent upon receipt of appropriated funds and acceptable performance by the recipient.

c. If the Government exercises this option, the extended assistance agreement shall be considered to include this option term.

10. TRAVEL-GOVERNMENT/MILITARY PERSONNEL (MARCH 2008) (USAMRAA)

Travel costs associated with the Government/Military personnel providing research effort on this award are authorized in accordance with Title 31 U.S.C. Section 1353.

The following have been deleted:

USAMRAA-XXXX- FDP AGENCY SPECIFIC TERMS
0002

AUG 2009

SECTION 00800 - SPECIAL CONTRACT REQUIREMENTS

The following have been added by full text:

SPECIAL CONTRACT REQUIREMENTS

ADDITIONAL TECHNICAL REPORTING REQUIREMENTS:

PROGRAMMATIC LINE REVIEW (PLR)

a. The reporting requirements for Military Operational Medicine Research Program (MOMRP) include quarterly, annual and final reports and the Principal Investigator's (PI's) participation in at least one programmatic line review (PLR) for this project each year of the project's period-of-performance.

b. The PI shall prepare for and participate in at least one PLR for this project for each year of the project's term, at the Grants Officer's Representative's (GOR's) request. The invitation and format for the programmatic review will be provided by MOMRP at least 90 days prior to the meeting. The meetings will generally be held in the Fort Detrick, Maryland, area, but may occur elsewhere in the U.S. Participation in the PLR will be in lieu of submitting next scheduled Quarterly report required under the award.

QUARTERLY REPORTS

a. Quarterly reports are the most immediate and direct contact between the Principal Investigator (PI) and the Grants Officer's Representative (GOR). The reports provide the means for keeping this Command advised of developments and problems as the research effort proceeds. The quarterly reports also provide a measure against which decisions on release of funding and on requests for supplements are made.

b. In accordance with Section C., a Quarterly Report shall be submitted for each three-month period beginning with the effective date of the assistance agreement. This requirement includes all three-month periods of the assistance agreement.

c. Copies of each report shall be submitted in the quantities indicated to the addresses shown below within fifteen (15) days after the end of each quarter. Internal Government distribution will be made by those offices (electronic submission preferred).

(1) One (1) copy of the report to:

Grants Officer's Representative
Military Operational Medicine Research Program (MOMRP)
ATTN: MAJ Pedro Bonilla-Vazquez
MCMR-RTO
504 Scott Street
Building 722, Room 32
Ft. Detrick, MD 21702-5012

(2) One (1) copy of the report to:

Director

U.S. Army Medical Research Acquisition Activity

ATTN: MCMR-AAA-W (W81XWH-09-2-0172)

820 Chandler Street

Fort Detrick, MD 21702-5014

d. The Quarterly Report sample (See following Quarterly Report Format) shall serve as the format. Each item of the report format shall be completed.

QUARTERLY REPORT FORMAT

1. Award No. _____
2. Report Date _____
3. Reporting period from _____ to _____
4. PI _____
5. Telephone No. _____
6. Institution _____
7. Project Title _____

8. Current staff, with percent effort of each on project.

_____ % _____ %
_____ % _____ %

9. Award expenditures to date (as applicable):

This Qtr/Cumulative	This Qtr/Cumulative
Personnel _____/_____	Travel _____/_____
Fringe Benefits _____/_____	Equipment _____/_____
Supplies _____/_____	Other _____/_____

This Qtr/Cumulative

Subtotal _____/_____

Indirect Costs _____/_____

Fee _____/_____
Total _____/_____

10. Comments on administrative and logistical matters.

11. Use additional page(s), as necessary, to describe scientific progress for the quarter in terms of the tasks or objectives listed in the statement of work for this assistance agreement.

12. Use additional page(s) to present a brief statement of plans or milestones for the next quarter.

The following have been deleted:

SPECIAL CONTRACT REQUIREMENTS

Appendix B: Data Linking Procedures and Timeline

Army Intervention Data Sources

This document outlines the datasets created around the Army Intervention.

SM SURVEY/PROVIDER SURVEYS/PDHRA/PDHA/HCE MERGE

This dataset contains data for every Service member for whom any of the following is true:

- Completed a Service Member Survey
- A Provider Post-PDHRA 3 Question Survey was completed by their provider
- They were in the linking file and had a PDHRA match (this happened 14 times, likely because occasionally a Service member would complete a blue card, but not a survey, and the provider also did not complete a 3 Question Survey for the Service member).

The following subsections outline the data sources that comprise the larger dataset.

Service Member Survey

Table 1. Records removed and total records for Service Member Survey

	Total Removed	Total Records
Raw SM Survey records	n/a	1608
Records deleted if Survey does not represent a SM, if the survey was entered by OTSG, or if the survey was duplicated	92	1516

Provider Post-PDHRA 3 Question Survey

Table 2. Records removed and total records for Provider 3 Question Survey

	Total Removed	Total Records
Raw Provider 3 Question Survey records	n/a	3102
Records deleted if survey number was duplicated	5	3097

First Provider Survey

Table 3. Total Records for First Provider Survey

	Total Removed	Total Records
Number of First Provider Surveys	n/a	38

Last Provider Survey

Table 4. Total Records for First Provider Survey

	Total Removed	Total Records
Number of Last Provider Surveys	n/a	21

Workshop Evaluation

Table 5. Total Records for Workshop Evaluation

	Total Removed	Total Records
Number of Workshop Evaluations	n/a	23

Linking File

Table 5. Total Records for Linking File

	Total Removed	Total Records
Number of Linking File Records	n/a	1852

PDHRA (clean)

This is a tile file, and has multiple records per Service member. It includes Army Active and Reserves. Date of completion ranges from 10 Feb 2008 through 20 March 2012.

Table 6. Records removed and total records for PDHRA

	Total Removed	Total Records
Raw PDHRA Records	n/a	227,217
Key variable missing (date departed theater, date of form completion,)	2	227,215
Service Branch was anything besides Army.	310	226,905
Final Number of PDHRA Records		226,905

PDHA (raw)

Only combat exposure variables have been pulled into the larger data set.

Table 7. Total Records for PDHA

	Total Removed	Total Records
Number of PDHA Records	n/a	373,431

HCE (raw)

Table 8. Total Records for HCE

	Total Removed	Total Records
Number of HCE Records	n/a	1,760,575

ClinMerge

This is the compilation of the above datasets. Table 9 shows the total records after each merge.

Table 9. Total records at each step of the merge

	Total Removed	Total Records
Merging SM Survey x 3QX merge	n/a	3212
Merging the above with Other Provider Surveys	n/a	3212
Merging the above AFHSC Linking File	n/a	3244
Merging the above with the PDHRA	n/a	3273
Records if there were multiple PDHRA matches and one was outside the intervention dates.	44	3229

ALL PDHA & PDHRAS FOR SMS IN THE STUDY

This is a tall file that includes all PDHRA and PDHA (only combat variables were pulled for the latter) records for Service members who were part of the intervention. The criteria for being “a part of the intervention” are the same as above:

- Completed a Service Member Survey
- A Provider Post-PDHRA 3 Question Survey was completed by their provider
- They were in the linking file and had a PDHRA match (this happened 14 times, likely because occasionally a Service member would complete a blue card, but not a survey, and the provider also did not complete a 3 Question Survey for the Service member).

There are two variables that indicate if the record was collected in relation to the workshop: INTERVENTIONPDHRA and INTERVENTIONPDHA (the latter indicated the PDHA that is matched with the PDHRA related to the workshop).

Table 10. Total PDHA and PDHRA records for all Service members in the study.

	Total Removed	Total Records
PDHA Records	n/a	3036
PDHRA Records	n/a	2465
Total	n/a	5501

ALL PDHRAS COMPLETED BY THE 51 INTERVENTION PROVIDERS

This is a tall file that contains all the PDHRAs completed the 51 providers that were part of the intervention. There is a variable called INTERVENTIONPDHRA that tells you which PDHRAs were completed in relation to the workshop. The N is around 1700 and indicates a linked PDHRA that was completed during one of our site visits.

Location from the Provider/Location Linking file has been imported (variable is called CITY), but 53.25 % is missing. The variable LOCATION is from the site visits, and is complete.

The variable WORKSHOP indicates whether the provider participated in the workshop during a site visit.

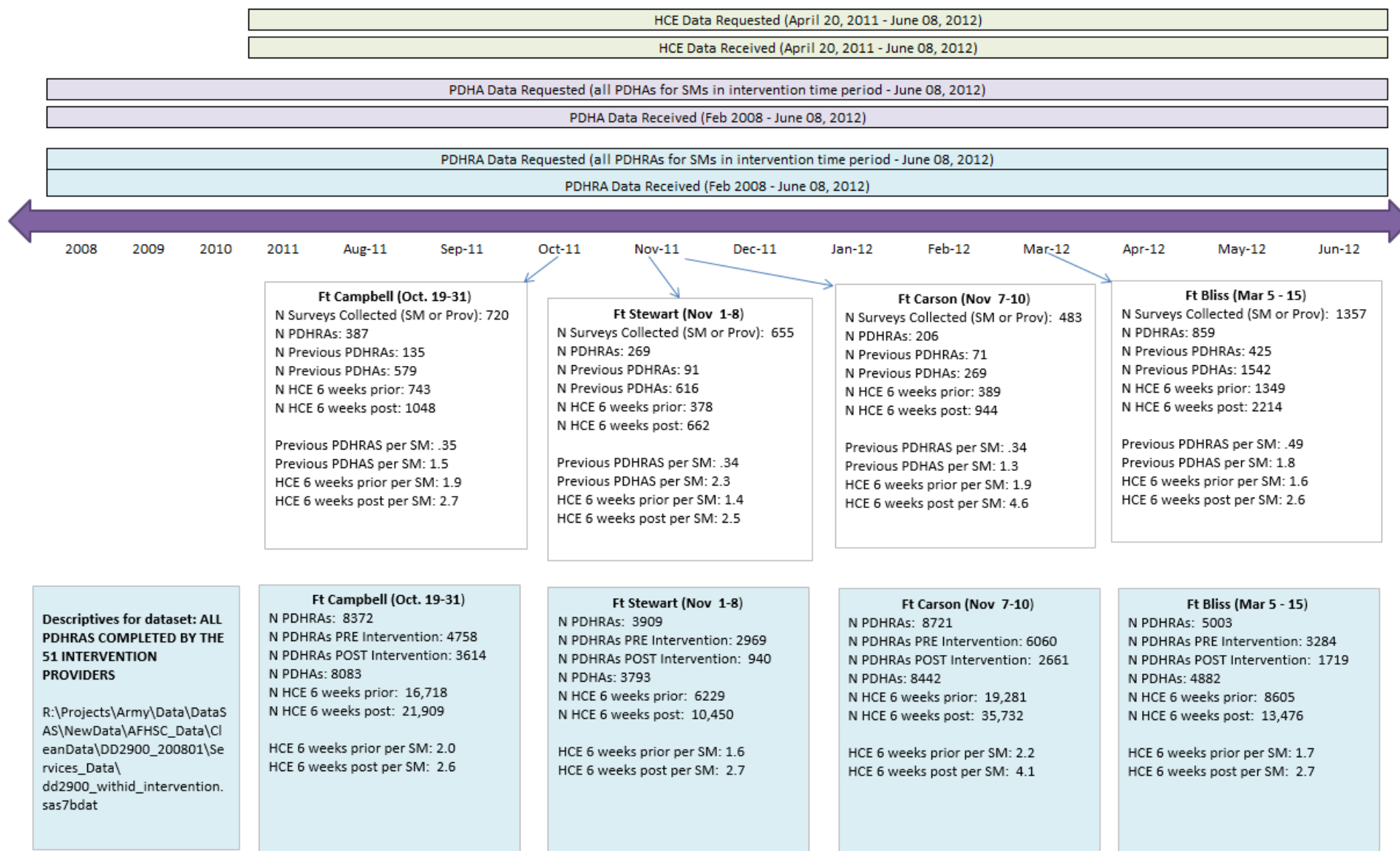
The variable PREPOST indicates whether a PDHRA was completed before or after the workshop. This should be combined with WORKSHOP to determine whether the provider actually participated in the intervention.

Table 11. Total PDHRAs for intervention providers.

	Total Removed	Total Records
Number of potential PDHRAs matched to Providers	n/a	26272
Records removed if event date in the linking file and in the Clean PDHRA file were not within 7 days of each other.	267	26005
Total	n/a	26005

Annual Report: Contract # W81XWH-09-2-0172

Timeline of Data Requests, Data Received, and Site Visits



**Appendix C: Presentation Given at the 2013 American Psychological Association
Annual Meeting**

Communication Training for Health Care Providers to Improve Military Mental Health Screening

SUSAN DOUGLAS, ANA REGINA VIDES DE
ANDRADE, STEPHANIE BOYD, NICOLE
FRAZER, MELISSA FRAINE, LYNN WEBB,
AND LEONARD BICKMAN

APA July 2013



This research was carried out in cooperation with Force Health Protection and Readiness (FHP&R) and was supported by the Department of Defense (DoD W81XWH-07-P-1026) and by U.S. Army Medical Research Acquisition Activity (USAMRAA W81XWH-09-2-0172)

Many thanks to the countless individuals who contributed to this project, with special appreciation for our Service Members and those who provide care for them.

Overview

3

- **Rationale**
 - Health screening is a DoD priority
 - Findings from 2009 evaluation
- **Workshop development**
 - Focus on patient-centered communication
 - Best practice approaches to training included emphasis on experiential learning
- **Pilot study**
 - Aims and methods
 - Participants
 - Results
- **Conclusions and next steps**

Rationale

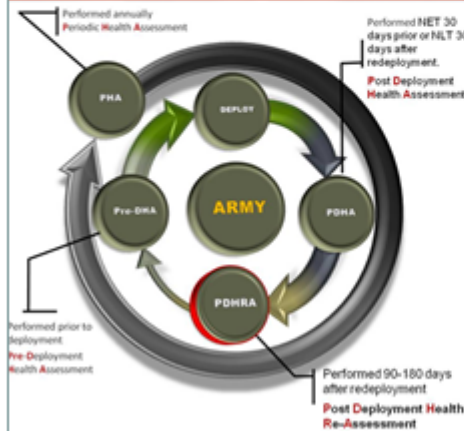
4

MILITARY HEALTH SCREENING
2009 EVALUATION

Military Periodic Health Screening

5

Occurs Throughout Deployment Cycle



Our focus on PDHRA

- Post Deployment Health Re-Assessment
- Facilitates access to care during re-adjustment 3 to 6 months after return from deployment
- Evaluates physical and mental health symptoms, psychosocial stressors, and exposure concerns

SAMPLE

11. Since return from your deployment, have you had serious conflicts with your spouse, family members, close friends, or at work that continue to cause you worry or concern? ☐ Yes ☐ No ☐ Unsure

12. Have you ever had any experience that was so frightening, horrible, or upsetting that, IN THE PAST MONTH, you

a. Have had nightmares about it or thought about it when you did not want to? ☐ Yes ☐ No

b. Tried hard not to think about it or went out of your way to avoid situations that remind you of it? ☐ Yes ☐ No

c. Were constantly on guard, watchful, or easily startled? ☐ Yes ☐ No

d. Felt numb or detached from others, activities, or your surroundings? ☐ Yes ☐ No

13a. In the PAST MONTH, did you use alcohol more than you meant to? ☐ Yes ☐ No

b. In the PAST MONTH, have you felt that you wanted to or needed to cut down on your drinking? ☐ Yes ☐ No

c. How often do you have a drink containing alcohol?

☐ Never ☐ Monthly or less ☐ 2 to 4 times a month ☐ 2 to 3 times a week ☐ 4 or more times a week

d. How many drinks containing alcohol do you have on a typical day when you are drinking?

☐ 1 or 2 ☐ 3 or 4 ☐ 5 or 6 ☐ 7 to 9 ☐ 10 or more

e. How often do you have six or more drinks on one occasion?

☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily

14. Over the PAST MONTH, have you been bothered by the following problems?

	Not at all	Few or several days	More than half the days	Nearly every day
a. Little interest or pleasure in doing things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Feeling down, depressed, or hopeless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Would you like to schedule a visit with a healthcare provider to further discuss your health concern(s)? ☐ Yes ☐ No

16. Are you currently interested in receiving information or assistance for a stress, emotional or alcohol concern? ☐ Yes ☐ No

17. Are you currently interested in receiving assistance for a family or relationship concern? ☐ Yes ☐ No

18. Would you like to schedule a visit with a chaplain or a community support counselor? ☐ Yes ☐ No

Select Evaluation Findings (2009)

7

- Overall PDHRA increases access to care
- SM self-report responses highly consistent, while provider documentation of concerns and referrals was quite variable
- Substantial minority of SMs anonymously admitted to under-reporting mental health problems and were not identified as in need of care
- Provider – SM communication patterns indicate a physician-centered approach
 - High prevalence of closed-ended questions, re-statements
 - Low incidence of relationship-building statements

<http://handle.dtic.mil/100.2/ADA528063>

Workshop Development

8

FOCUS ON PATIENT-CENTERED
COMMUNICATION

BEST PRACTICE APPROACHES

Patient-Centered Communication

9

- **Evidence-based benefits**
 - Increase disclosure of psychosocial concerns
 - Greater compliance with treatment recommendations
 - Enhance provider satisfaction
 - Effective even during brief encounters
 - Communication training improves skills for new and experienced medical professionals
- **Evidence-based practice improvement strategies**
 - Experiential learning
 - Coaching and feedback
 - Peer support and discussion

Half Day Workshop for Experienced PDHRA Providers

10

Patient-Centered PDHRA Model*



- **Tailored existing model to PDHRA**
 - Context free behaviors (e.g., asking open-ended questions)
 - Context specific behaviors (e.g., brief counseling on common re-integration concerns)

Specific Strategies Covered

- **Building therapeutic alliance**
 - Activelistening
 - Empathizing
- **Active partnering**
 - Summarize using SMs language
 - Ask for preferences/goals
 - Check for understanding
- **Psychoeducation**
 - Normalizing concerns
 - Legitimizing treatment options
 - Offering resources

*Based on the Macy: <http://regumacy.med.nyu.edu/curriculum/model/macoa.html>

11

Audio case examples

Based on recordings of actual PDHRA encounters

Re-enacted by actors to protect patient confidentiality

Selected to facilitate peer discussion of specific communication skills

Interspersed throughout first 2 hours of facilitated discussion


SLIDE 16

Key Words at Key Times

Why is it important to expand on the Soldier's DD Form 2900 responses?

Increase the opportunity for Soldier disclosure → Recognition of Problem → Referral

How do you expand on the Soldier's DD Form 2900 responses?



Key Words at Key Times:

- "Tell me more about that..."
- "For some Soldiers, a response to ____ may indicate _____. What led you to mark _____?"
- "Let me summarize what I heard. What else?"
- "Some Soldiers find it difficult to express their concerns on the form. In general, what has most concerned you since your return home?"
- Ask direct questions about mental health concerns and barriers*

Emphasis on Experiential Learning:
Peer discussion of audio snippets

12

Simulated Patients*

4 cases developed using multiple methods (review of actual recorded encounters, case study presentations by military psychologists, input from expert military panel)


Delivered remotely through video technology during last 2 hours of workshop

Group training format for peer engagement and immediate feedback

SLIDE 17

Simulated Patients






Emphasis on Experiential Learning:
Interaction with Simulated Patients

*SP training and management provided by VUMC Center for Experiential Learning (Program in Human Simulation)

Pilot Study

13

RESEARCH AIMS
METHODS
PARTICIPANTS
RESULTS

Pilot Study: Aims and Methods

14

- **Research Aims**

1. Explore providers' perceptions of workshop acceptability and feasibility
2. Assess impact of workshop on soldiers' ratings of provider communication skills
3. Determine efficacy of workshop on identification of soldiers' psychosocial concerns

- **Design**

- Quasi-experimental
- Multi-day data collection with workshop at midpoint
- Naturally occurring comparison group of non-workshop providers

- **Measures**

- Pre- and post-workshop provider report measures of communication self-efficacy
- Surveys completed after PDHRA encounters by soldiers and providers about the encounter and related attitudes

- **Analyses**

- Mixed models, including poisson loglinear model
- Clustered by provider (ICC 5%**) not by location (ICC 1%)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Participants

15

- Four installations
 - Site visits ranged from 4 to 9 days
 - 9 to 16 providers per site participated in data collection (n=51)
 - About half the providers at each site participated in workshop (n=23)
 - 3750 total PDHRA encounters
 - 1366 cases with all data

PDHRA Encounters	Provider Surveys	Matched soldier Surveys
966	70%	34%
790	80%	39%
569	83%	31%
1425	91%	41%

Percent Participating Providers	Workshop	Non-Workshop
Male gender	52%	60%
Age 30-49 years	57%	55%
Physician Assistant	74%	67%
Current or former military	70%	60%
GE 3 years PDHRA experience	48%	13%
GE 11 years HCP experience	57%	40%

- Providers were typically PAs, male, 30 – 50 years old
- Workshop providers may have been more experienced

16

Results

Aim 1: Explore providers' perceptions of workshop acceptability and feasibility

Measure: Post-workshop evaluation survey (developed for this study)

Providers found the workshop useful and relevant to PDHRA

- 100% agreed or strongly agreed
 - Techniques/materials useful and trainers were knowledgeable/effective
 - Content was relevant to their work, would help them be more effective in eliciting soldiers' mental health concerns, intended to try using the communication skills in practice
- Barriers to feasibility
 - 52% concerned that communication skills would increase PDHRA encounter length (note: when asked at end of site visit, 76% of providers reported no or minor acceptable increase in time)
 - 22% disagreed that they would be supported in using the skills by installation leadership
 - 30% disagreed that the workshop was a sufficient length; wanted more coaching

17

Results

Aim 2: Assess impact of workshop on soldiers' ratings of provider communication skills

Measure: Communication Assessment Tool (CAT; Makoul et al., 2007)

Modified from 15 to 14 items ($\alpha = 0.98$)

Sample items

This provider...

Treated me with respect

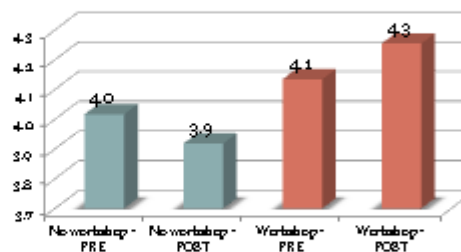
Let me talk without interruptions

Involved me in decisions as much as I wanted

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

According to soldiers, the workshop increased providers' patient-centered communication skills

Soldiers' Ratings of Provider Communication Skills: Pre- and Post-Workshop



- Non-workshop providers were rated similarly on patient-centered communication before and after
- Workshop providers were rated significantly higher after the workshop compared to before ($t = 2.7^{**}$)

18

Results

Aim 3: Determine efficacy of workshop on providers' identification of soldiers' psychosocial concerns

Measure: VU-developed 3 item survey completed immediately after the PDHRA encounter

Scale as sum of items ($\alpha = 0.72$)

Any discussion of MH concerns not already reported?

Think this soldier disclosed all MH symptoms?

Believe this soldier could benefit from further evaluation for MH symptoms

There was no main effect for workshop on provider identification of soldiers' MH concerns

- The majority of PDHRA encounters were rated as having no identification of MH concerns
 - Mean = 0.61 (range 0 to 3)
 - 64% had a score of zero
- Know from past research the majority of soldiers do not have any problems to identify; need a covariate
- Soldiers reported anonymously whether they or others (e.g., friends) thought they had a MH concern

Anonymous soldier report of self- or other-identified MH concerns



19

Results

Aim 3: Determine efficacy of workshop on providers' identification of soldiers' psychosocial concerns

Among soldiers with anonymously self-reported MH concerns, the workshop increased provider identification of soldiers' MH concerns

Results of Poisson Loglinear Regression Estimating Provider Identification of MH Concerns				
Parameter	Estimate	Std. Error	Wald's Z	Incidence Rate Ratio
Intercept	-1.1	0.2	-6.2 ***	0.34
Workshop	0.1	0.2	0.5	1.12
Time (pre-post)	0.2	0.2	1.4	1.24
Soldier-identified MH concerns	1.2	0.2	7.4 ***	3.39
Workshop * Time	-0.3	0.2	-1.4	0.72
Workshop * Concerns	0.0	0.3	-0.1	0.96
Time * Concerns	-0.4	0.2	-2.6*	0.67
Workshop * Time * Concerns	0.6	0.3	2.3*	1.83

- For all providers
 - Strong positive association between soldier-identified MH concerns and provider identification of MH concerns
 - Bigger drop in provider identification of soldier MH concerns pre- to post-workshop for soldiers who self-identified with MH concerns compared to soldiers with no MH concerns
- Three-way interaction showed pre-post increase only for workshop providers and only where soldiers anonymously reported MH concerns
 - 1.83 times greater than similar soldiers who reported MH concerns but their providers did not receive the workshop

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Conclusions and Next Steps

20

- Half-day workshop developed that provided
 - Patient-centered communication skills tailored to military health screening process
 - Heavy emphasis on experiential learning techniques
 - Appropriate level of training for experienced professionals
- Workshop
 - Found to be acceptable and feasible by participating providers
 - Increased providers' patient-centered communication skills as rated by soldiers
 - Increased providers' identification of MH concerns through discussion and evaluation – only in context of PDHRA encounters where soldiers anonymously reported MH concerns
- Limitations
 - Quasi-experimental pilot study with no randomization
 - Small sample size (51 providers)
- Next steps
 - Analysis of time-series data from electronic health records
 - Final report due to USAMRAA this fall
 - Disseminate findings within DoD community of interest

**Appendix D: Presentation Given at the Force Health Protection and Readiness
Psychological Health Forum**

Communication Training for Health Care Providers Improves Military Mental Health Screening

SUSAN DOUGLAS, ANA REGINA VIDES DE
ANDRADE, STEPHANIE BOYD, NICOLE
FRAZER, MELISSA FRAINE, LYNN WEBB,
AND LEONARD BICKMAN

Psych Health Forum Sept 2013



This research was carried out in cooperation with Force Health Protection and Readiness (FHP&R) and was supported by the Department of Defense (DoD W81XWH-07-P-1026) and by U.S. Army Medical Research Acquisition Activity (USAMRAA W81XWH-09-2-0172)

Many thanks to the countless individuals who contributed to this project, with special appreciation for our Service Members and those who provide care for them.

Overview

3

- **Rationale**
 - Health screening is a DoD priority
 - Findings from 2009 evaluation
- **Workshop development**
 - Focus on patient-centered communication
 - Best practice approaches to training included emphasis on experiential learning
- **Pilot study**
 - Aims and methods
 - Participants
 - Results
- **Conclusions and next steps**

Rationale

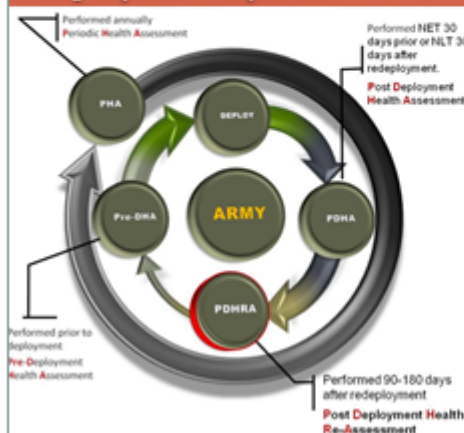
4

MILITARY HEALTH SCREENING
2009 EVALUATION

Military Periodic Health Screening

5

Occurs Throughout Deployment Cycle



Our focus on PDHRA

- Post Deployment Health Re-Assessment
- Facilitates access to care during re-adjustment 3 to 6 months after return from deployment
- Evaluates physical and mental health symptoms, psychosocial stressors, and exposure concerns

PDHRA*: Two components

6

Self-Report Form

- Brief, typically completed online
- Specific questions ask about 4 areas of psychosocial concern
 - Relationship conflicts
 - PTSD symptoms
 - Alcohol use
 - Depression

Health Care Provider Interview

- Brief (average 10 min.)
- Provider interview goals
 - Review self-report responses and provide a brief health assessment
 - Provide education
 - Make referrals for further evaluation as warranted
- Atypical medical encounter
 - No diagnosis, prognosis, or treatment may be given
 - No physical exam
 - SM required to participate

*As conducted at the time of the study; recent changes to the process include additional mental health assessments.

☐ JPS or other tools
☐ Lasers

11. Since return from your deployment, have you had serious conflicts with your spouse, family members, close friends, or at work that continue to cause you worry or concern? ☐ Yes ☐ No ☐ Unsure

12. Have you ever had any experience that was so frightening, horrible, or upsetting that, IN THE PAST MONTH, you

a. Have had nightmares about it or thought about it when you did not want to? ☐ Yes ☐ No
 b. Tried hard not to think about it or went out of your way to avoid situations that remind you of it? ☐ Yes ☐ No
 c. Were constantly on guard, watchful, or easily startled? ☐ Yes ☐ No
 d. Felt numb or detached from others, activities, or your surroundings? ☐ Yes ☐ No

13a. In the PAST MONTH, Did you use alcohol more than you meant to? ☐ Yes ☐ No
 b. In the PAST MONTH, have you felt that you wanted to or needed to cut down on your drinking? ☐ Yes ☐ No
 c. How often do you have a drink containing alcohol?
☐ Never ☐ Monthly or less ☐ 2 to 4 times a month ☐ 2 to 3 times a week ☐ 4 or more times a week
 d. How many drinks containing alcohol do you have on a typical day when you are drinking?
☐ 1 or 2 ☐ 3 or 4 ☐ 5 or 6 ☐ 7 to 9 ☐ 10 or more
 e. How often do you have six or more drinks on one occasion?
☐ Never ☐ Less than monthly ☐ Monthly ☐ Weekly ☐ Daily

14. Over the PAST MONTH, have you been bothered by the following problems?

	Not at all	Few or several days	More than half the days	Nearly every day
a. Little interest or pleasure in doing things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Feeling down, depressed, or hopeless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Would you like to schedule a visit with a healthcare provider to further discuss your health concern(s)? ☐ Yes ☐ No

16. Are you currently interested in receiving information or assistance for a stress, emotional or alcohol concern? ☐ Yes ☐ No

Select Evaluation Findings (2009)

8

- Overall PDHRA increases access to care
- SM self-report responses highly consistent, while provider documentation of concerns and referrals was quite variable
- Substantial minority of SMs anonymously admitted to under-reporting mental health problems and were not identified as in need of care
- Provider – SM communication patterns indicate a physician-centered approach
 - High prevalence of closed-ended questions, re-statements
 - Low incidence of relationship-building statements

<http://handle.dtic.mil/100.2/ADA528063>

Workshop Development



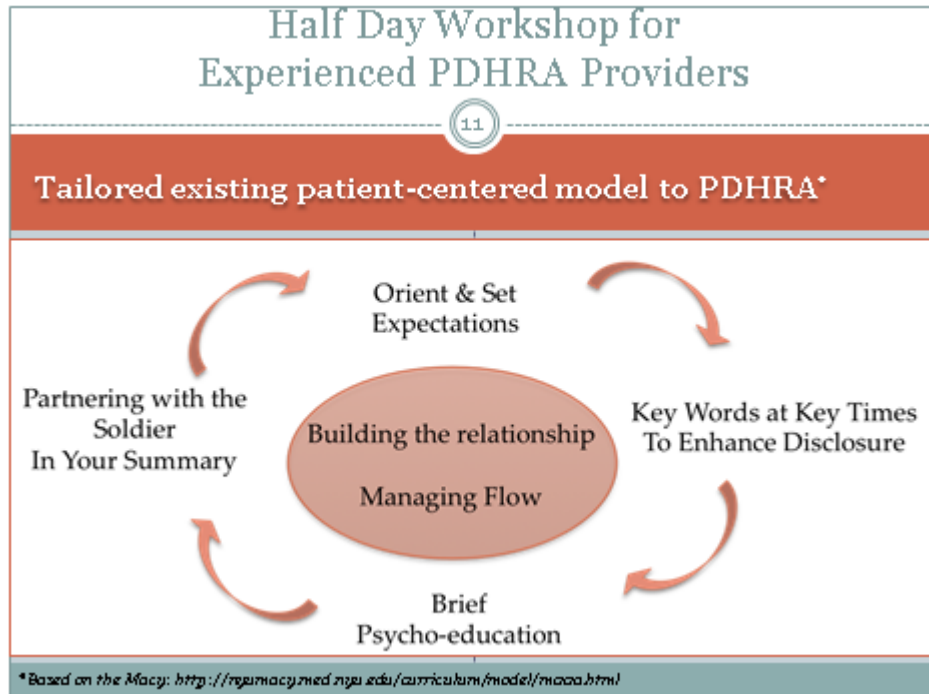
**FOCUS ON PATIENT-CENTERED
COMMUNICATION**

BEST PRACTICE APPROACHES

Patient-Centered Communication



- **Evidence-based benefits**
 - Increase disclosure of psychosocial concerns
 - Greater compliance with treatment recommendations
 - Enhance provider satisfaction
 - Effective even during brief encounters
 - Communication training improves skills for new and experienced medical professionals
- **Evidence-based practice improvement strategies**
 - Experiential learning
 - Coaching and feedback
 - Peer support and discussion



Workshop Structure and Content	
Structure	Sample Content
<ul style="list-style-type: none"> • Tailored existing model to PDHRA <ul style="list-style-type: none"> ○ Context free behaviors (e.g., asking open-ended questions) ○ Context specific behaviors (e.g., brief counseling on common re-integration concerns) • Emphasis on experiential learning <ul style="list-style-type: none"> ○ Didactic presentation ○ Audio case examples for facilitated discussion ○ Simulated patient interviews 	<ul style="list-style-type: none"> • Building therapeutic alliance <ul style="list-style-type: none"> ○ Active listening ○ Empathizing • Active partnering <ul style="list-style-type: none"> ○ Summarize using SMs language ○ Ask for preferences/goals ○ Check for understanding • Psychoeducation <ul style="list-style-type: none"> ○ Normalizing concerns ○ Legitimizing treatment options ○ Offering resources

13

Audio case examples

Based on recordings of actual PDHRA encounters

Re-enacted by actors to protect patient confidentiality

Selected to facilitate peer discussion of specific communication skills

Interspersed throughout first 2 hours of facilitated discussion

SLIDE 16

Key Words at Key Times

Why is it important to expand on the Soldier's DD Form 2900 responses?

Increase the opportunity for Soldier disclosure → Recognition of Problem → Referral

How do you expand on the Soldier's DD Form 2900 responses?

Key Words at Key Times:

- "Tell me more about that..."
- "For some Soldiers, a response to ____ may indicate _____. What led you to mark ____?"
- "Let me summarize what I heard. What else?"
- "Some Soldiers find it difficult to express their concerns on the form. In general, what has most concerned you since your return home?"
- *Ask direct questions about mental health concerns and barriers*

Emphasis on Experiential Learning:
Peer discussion of audio snippets

14

Simulated Patients*

4 cases developed using multiple methods (review of actual recorded encounters, case study presentations by military psychologists, input from expert military panel)

Delivered remotely using video technology during last 2 hours of workshop

Group training format for peer engagement and immediate feedback



Emphasis on Experiential Learning:

Interaction with Simulated Patients

*SP training and management provided by VUMC Center for Experiential Learning (Program in Human Simulation)

Simulated patient

- Private First Class Adam Davidson
 - Age: 20
 - Rank: E3
 - Marital Status: Single
 - Deployments: 1 to Afghanistan
 - SP#1 "Barriers to care" – young enlisted soldier's concerns about stigma and confidentiality
- Sergeant Robert Woodson
 - Age: 27
 - Rank: E5
 - Marital Status: Married
 - Deployments: 2 to Afghanistan
 - SP#2 "Avoidance and denial" – soldier to recognize his mental health symptoms

Cover sheet and completed DD Form 2900 provided

Annual Report: Contract # W81XWH-09-2-0172

1. Young Enlisted
This form must be completed electronically. Handwritten forms will not be accepted.
Service Member's Social Security Number:

1. Compared to before your most recent deployment, how would you rate your health during the PAST 30 DAYS?

2. Compared to before your most recent deployment, how would you rate your health in general now?

3. During the past 4 weeks, how difficult have physical health problems (stress or mood) made it for you to do your work or other regular daily activities?

4. During the past 4 weeks, how difficult have emotional health problems (stress or mood) made it for you to do your work or other regular daily activities?

5. Since you returned from deployment, about how many times have you seen a healthcare provider for any reason, such as in sick call, emergency room, primary care, family doctor, or mental health provider?

6. Since you returned from deployment, have you been hospitalized?

7. During your deployment, were you wounded, injured, assaulted or otherwise physically hurt?

8. If YES, say to Question 9.

9. If YES, are you still having problems related to this wound, assault, or injury?

10. In addition to wounds or injuries you listed in question 7, do you currently have a health concern or condition that you feel is related to your deployment?

11. If YES, please mark the boxes that best describe your deployment-related condition or concern.

12. During this deployment, did you experience any of the following events? (Mark all that apply)

13. In the past week, have you had any of the symptoms you indicated in 12? (Mark all that apply)

DD FORM 2900, JAN 2006

Simulated patients

10

- Colonel Diana Perez
 - Age: 40
 - Rank: O5
 - Marital Status: Single
 - Deployments: 2 to Iraq
 - SP#3 "Career concerns" – goal to elicit disclosure from high-ranking soldier who is reluctant to talk about her health concerns due to concerns about impact on career
- Sergeant David Thompson
 - Age: 40
 - Rank: E7
 - Marital Status: Separated
 - Deployments: 3 total, 1 to Iraq, 2 to Afghanistan
 - SP#4 "Time management" – soldier presents as tangential and difficult to manage as he talks about personal problems; provider must maintain control of the interview to complete in a timely fashion

Cover sheet and completed DD Form 2900 provided in binder

Pilot Study

17

RESEARCH AIMS
METHODS
PARTICIPANTS
RESULTS

Pilot Study: Aims and Methods

18

• Research Aims

1. Explore providers' perceptions of workshop acceptability and feasibility
2. Assess impact of workshop on soldiers' ratings of provider communication skills
3. Determine efficacy of workshop on identification of soldiers' psychosocial concerns

• Design

- Quasi-experimental
- Multi-day data collection with workshop at midpoint
- Naturally occurring comparison group of non-workshop providers

• Measures

- Pre- and post-workshop provider-report measures of communication self-efficacy
- Surveys completed after PDHRA encounters by soldiers and providers about the encounter and related attitudes
- Electronic health records including PDHRAs

• Analyses

- Mixed models, including poisson loglinear model
- Time series (proc panel)
- Clustered by provider (ICC 5% to 10% **) not by location (ICC 1%)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Participants

Installation and Provider Characteristics

19

- Four installations
 - Site visits ranged from 4 to 9 days
 - 9 to 16 providers per site participated in data collection (n=51)
 - About half the providers at each site participated in workshop (workshop n=23)
 - 3750 total PDHRA encounters
 - 1366 cases with all data

Installation	PDHRA Encounters	Provider Surveys	Matched soldier Surveys
1	966	70%	34%
2	790	80%	39%
3	569	83%	31%
4	1425	91%	41%

Percent Participating Providers	Workshop	Non-Workshop
Male gender	52%	60%
Age 30-49 years	57%	55%
Physician Assistant	74%	67%
Current or former military	70%	60%
GE 3 years PDHRA experience	48%	13%
GE 11 years HCP experience	57%	40%

- Providers were typically PAs, male, 30 – 50 years old
- Workshop providers may have been more experienced
- Selection non-random (convenience sample)

Participants

Soldier Characteristics

20

- Age
 - 41% 18-24 years
 - 29% 25-29 years
 - 24% 30-39 years
 - 6% 40 years and over
- 94% male
- All active duty
- Rank
 - 58% E1 – E4
 - 28% E5 – E6
 - 5% E7 – E9
 - 9% O1 – O9, WO1-WO5

Number of Soldiers by Study Group		
Interviewed by Workshop Provider	No	Yes
PDHRA before workshop	312	301
PDHRA after workshop	369	412
Total	681	713

- No differences across groups

Aim 1

21

EXPLORE PROVIDERS' PERCEPTIONS OF WORKSHOP ACCEPTABILITY AND FEASIBILITY

22

Results

Aim 1: Explore providers' perceptions of workshop acceptability and feasibility

Measure: Post-workshop evaluation survey (developed for this study)

Providers found the workshop useful and relevant to PDHRA

- **100% agreed or strongly agreed**
 - Techniques/materials useful and trainers were knowledgeable/effective
 - Content was relevant to their work
 - Would help them be more effective in eliciting soldiers' mental health concerns
 - Intended to try using the communication skills in practice

23

Results

Aim 1: Explore providers' perceptions of workshop acceptability and feasibility

Even experienced providers felt that the workshop fulfilled often unmet provider needs.

- “This was very, very valuable. I have been doing PDHRAs for over 5 years and would have benefited from this at my initial training. A yearly refresher for all providers would also be valuable. Hearing the input from my colleagues was particularly useful.”

24

Results

Aim 1: Explore providers' perceptions of workshop acceptability and feasibility

Providers liked the experiential learning and peer interaction

- **Providers expressed:**
 - Frustration at the “slide deck” mode of training typically used at their facilities.
 - Strong support for simulated patients as useful training tools.
 - Appreciation for the opportunity to learn how colleagues dealt with difficult interview situations.
 - × At all sites, providers said they rarely had such opportunities.
 - × During discussion, providers often wrote down/said they wanted to try techniques that their colleagues described using.
 - Several providers stated they wanted more training and feedback opportunities

25

Results

Aim 1: Explore providers' perceptions of workshop acceptability and feasibility

Simulated patient interactions and group discussion were the most widely valued workshop components

Most Useful Workshop Component	%*
Simulated patient interactions	57
Group discussion	39
Any specific communication strategy	13
General discussion/model of communication	13

*Total is over 100% because some providers listed more than one "most useful" component

26

Results

Aim 1: Explore providers' perceptions of workshop acceptability and feasibility

Measures: Post-workshop evaluation survey, Post-workshop self-efficacy survey

Providers mentioned structural barriers to feasibility

- Concern that use of communication skills would increase PDHRA encounter length
 - × 52% immediately after the workshop said yes
 - × 76% reported no or minor acceptable increase in team at the end of the site visit
- 22% felt they would not be supported in using the skills by installation leadership
- Concerns about structural problems with installation capacity to handle referrals:
 - × Fear of "opening up psych issues and motivating soldiers to seek care when the resources are not able to accommodate them in a timely basis."
 - × Encounters with soldiers who had already been frustrated by long waits for short appointments.

Aim 2

27

ASSESS IMPACT OF WORKSHOP ON SOLDIERS' RATINGS OF PROVIDER COMMUNICATION SKILLS

SM Survey Scales: Provider Ratings

28

Communication Assessment Tool (CAT)		
Item	Mean	Std. Dev.
Comfortable greeting	4.1	1.0
Treated with respect	4.3	0.9
Interest in my ideas	4.1	1.0
Understood concern	4.1	1.0
Paid attention	4.1	1.1
Talked without interruption	4.2	0.9
Enough information	4.1	1.0
Easy to understand	4.2	0.9
Checked understanding	4.1	1.0
Encouraged questions	3.9	1.2
Involved in decision	4.0	1.1
Discussed next steps	4.0	1.1
Showed concern	4.0	1.1
Spent right time	4.0	1.1

Makoul, Krupat et al., 2007

Communication Assessment Tool (CAT)

- Construct (context free): provider's patient-centered communication skills
- 14 items retained from original 15 (Makoul et al., 2007)
- Cronbach's alpha = 0.98
- Responses range from 1 (poor) to 5 (excellent) with higher scores better
- Overall scale mean = 4.1 (s.d. = 0.9)

SM Survey Scales: Provider Ratings

29

Physician's Humanistic Behaviors Questionnaire (PHBQ)		
	Mean	Std. Dev.
In a hurry (reversed)	3.3	0.7
Expressed concern for feelings	3.2	0.7
Asked how I was doing	3.4	0.7
Made uncaring remarks (reversed)	3.7	0.6
Short tempered or abrupt (reversed)	3.7	0.6
Knowledgeable about post-deployment concerns	3.3	0.7

Physician's Humanistic Behaviors Questionnaire (PHBQ)

- Construct (context free): provider's patient-centered communication skills
- 6 items retained from original 25 (Weaver et al., 1993) with modified wording
- Cronbach's alpha = 0.83
- Responses range from 1 (Strongly disagree) to 4 (Strongly agree) with higher scores better
- Overall scale mean = 3.4 (s.d. = 0.5)

Weaver, O'w, et al., 1993

SM Survey Scales: Provider Ratings

30

PDHRA Interview Behaviors (PIB)		
	Mean	Std. Dev.
Asked about physical health	1.0	0.2
Asked about emotional health	0.9	0.3
Asked about alcohol use	0.7	0.3
Help me recognize problems	0.7	0.3
Told me about effective treatments	0.7	0.3
Gave advice on how to access care	0.7	0.4
Talked about common reintegration issues	0.5	0.3
Asked if I was already getting treatment for reported concerns	0.9	0.3
Asked me how satisfied I was with treatment for reported concerns	0.7	0.3

PDHRA Interview Behaviors (PIB)

- Construct (context specific): expected provider behaviors during PDHRA interview
- 9 items developed for this study
- Cronbach's alpha = 0.87
- Responses of yes (1) or no (0)
- Overall scale calculated as the sum of items; mean = 6.0 (s.d. = 2.5)

VU derived scale

31

Results

Aim 2: Assess impact of workshop on soldiers' ratings of provider communication skills

All analytic models controlled for clustering within providers and main effects of time and workshop.

According to soldiers, the workshop increased providers' patient-centered communication skills

Measure	Estimate	Std. Error	Wald's Z	Cohen's d
CAT	0.3	0.1	2.6*	0.29
PHBQ	0.1	0.1	1.5	-
PIB	0.6	0.3	2.4*	0.23

Interpretation of Cohen's (1992) effect sizes: 0.2 (small), 0.5 (medium), 0.8 (large)

- For the CAT and PIB
 - Workshop providers were rated significantly higher after the workshop compared to before
 - Non-workshop providers were rated similarly before and after
- Variance attributable to providers as measured with intraclass correlation coefficients (ICCs) indicated medium effects
 - CAT ICC = 12%
 - PHBQ ICC = 9%
 - PIB ICC = 10%

Interpretation ICCs (Raudenbush & Liu (2000): 5% (small), 10% (medium), 15% (large)

*p < 0.05; **p < 0.01; ***p < 0.001

Aim 3

32

DETERMINE EFFICACY OF WORKSHOP ON PROVIDERS' IDENTIFICATION OF SOLDIERS' PSYCHOSOCIAL CONCERNS

33

Results

Aim 3: Determine efficacy of workshop on providers' identification of soldiers' psychosocial concerns

Measure: VU-developed 3 item survey completed immediately after the PDHRA encounter

Scale: *assum* of items ($\alpha = 0.72$)

Any discussion of MH concerns not already reported?

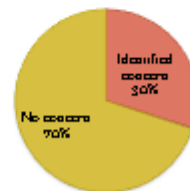
Think this soldier disclosed all MH symptoms?

Believe this soldier could benefit from further evaluation for MH symptoms

There was no main effect for workshop on provider identification of soldiers' MH concerns

- The majority of PDHRA encounters were rated as having no identification of MH concerns
 - Mean = 0.61 (range 0 to 3)
 - 64% had a score of zero
- Know from past research the majority of soldiers do not have any problems to identify; need a covariate
- Soldiers reported anonymously whether they or others (e.g., friends) thought they had a MH concern

Anonymous soldier report of self- or other-identified MH concerns



34

Results

Aim 3: Determine efficacy of workshop on providers' identification of soldiers' psychosocial concerns

Among soldiers with anonymously self-reported MH concerns, the workshop increased provider identification of soldiers' MH concerns

Parameter	Estimate	Std. Error	Wald's Z	Incidence Rate Ratio
Intercept	-1.1	0.2	-6.2 ***	0.34
Workshop	0.1	0.2	0.5	1.12
Time (pre-post)	0.2	0.2	1.4	1.24
Soldier-identified MH concerns	1.2	0.2	7.4 ***	3.39
Workshop * Time	-0.3	0.2	-1.4	0.72
Workshop * Concerns	0.0	0.3	-0.1	0.96
Time * Concerns	-0.4	0.2	-2.6 *	0.67
Workshop * Time * Concerns	0.6	0.3	2.3 *	1.83

- For all providers
 - Strong positive association between soldier-identified MH concerns and provider identification of MH concerns
 - Bigger drop in provider identification of soldier MH concerns pre- to post-workshop for soldiers who self-identified with MH concerns compared to soldiers with no MH concerns
- Three-way interaction showed pre-post increase only for workshop providers and only where soldiers anonymously reported MH concerns
 - 1.83 times greater than similar soldiers who reported MH concerns but their providers did not receive the workshop

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

35

Results

Aim 3: Determine efficacy of workshop on providers' identification of soldiers' psychosocial concerns

Electronic health records - all 26,005 PDHRAs for the 51 providers for the time period of April 2011 to December 2013.

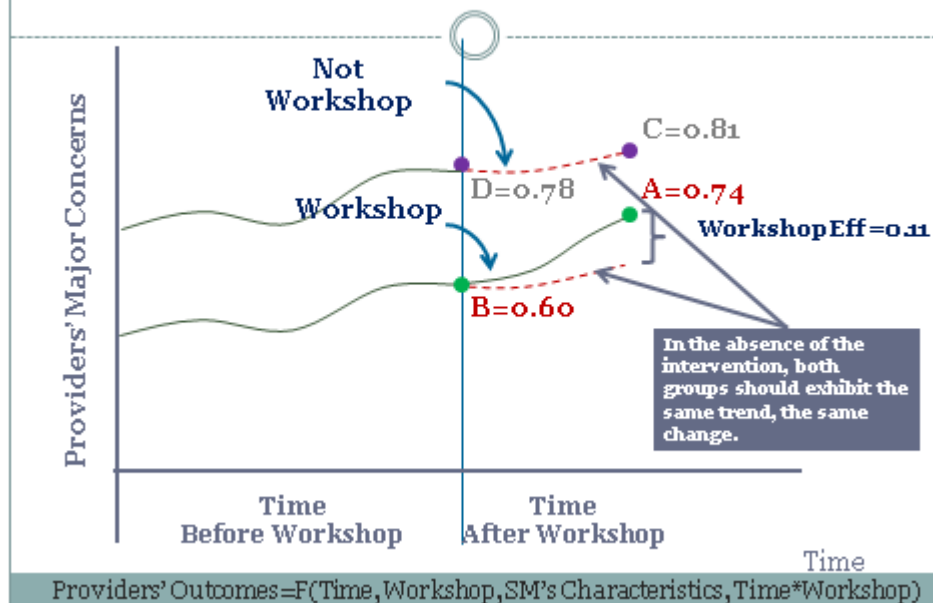
Panel Analysis : Difference in Difference

Difference in Difference (DD) compares the changes in outcomes over time:

$$DD = [\text{Time Change Workshop Group}] - [\text{Time Change Comparison Group}]$$

- Integrates 2 elements
 - Time in days: before and after the workshop for each provider
 - Treatment group (participation in workshop)
- Every provider keeps own calendar: keeping all time points and all PDHRAs reported each time
- Compares the average change by treatment group in two time segments
- Strength:** it accounts for providers' differences between groups that are constant over time

$$\text{Workshop Effect} = (A - B) - (C - D)$$



37

There were 23 & 28 providers in the workshop/comparison group respectively.

Providers participating in the workshop:

1) 392 PDHRAs before & 196 PDHRAs after the workshop.

2) Data on 202 days before & 158 days after.

Sample Characteristics

Providers' Averages	Group	Time	
		Before	After
SMs x Provider	Workshop	392	196
	No Workshop	288	158
Avg Time in Days x Provider	Workshop	202	158
	No Workshop	206	119

Providers without participating in the workshop:

1) 288 PDHRAs before & 158 PDHRAs after the workshop.

2) Data on 206 days before & 119 days after.

38

The DD estimated workshop effect on 3 providers' outcomes are reported here.

For each outcome we estimated a separate regression.

The estimated regressions controlled for SM's total self-reported problems, which in the past has been a relevant covariate.

Difference-in-Differences Workshop Effect Estimates

Providers' Outcomes	Est. Coeff	Std. Err.	p-value	Effect Size
Total # Major Concerns	0.058	0.014	<.0001	0.10
Total Medical Referrals	-0.038	0.013	0.0031	-0.07
Military One Source referral	0.014	0.003	<.0001	0.12

There are workshop effects: after the workshop

- Providers participating in the workshop on average increased # of concerns.
- Same providers decreased # of medical referrals, but increased referrals to Military One Source
- Findings are statistically significant but effect sizes are small (ES < .20)

Providers' Outcomes = F(Time, Workshop, SM's Characteristics, Time*Workshop)

Conclusions and Next Steps

39

- **Half-day workshop developed that provided**
 - Patient-centered communication skills tailored to military health screening process
 - Heavy emphasis on experiential learning techniques
 - Appropriate level of training for experienced professionals
- **Workshop impacts provider behavior**
 - Found to be acceptable and feasible by participating providers
 - Increased providers' patient-centered communication skills and expected behaviors during PDHRA interview as rated by soldiers
 - Increased providers' identification of MH concerns in context of PDHRA encounters where soldiers anonymously reported MH concerns
 - Affected PDHRA provider documentation, with more concerns and One Source referrals yet fewer medical referrals

Conclusions

40

- **Limitations**
 - Quasi-experimental pilot study with no randomization
 - Small sample size (51 providers)
- **Next steps**
 - Continue analytic model building
 - × Identify covariates
 - × Limit analysis of PDHRAs to those closest to date of workshop
 - × Determine best method to explore impact of workshop on PDHRA provider documentation by soldier self-reported problems
 - Final report due to USAMRAA this fall
 - Disseminate findings within DoD community of interest

Appendix E: Expert Panel Membership Roster

Table E.1 Expert Panel Members

Name	Role
Dr. Ivan Covas-Maldonado	Staff Deployment Health Physician at Ft Carson TBI Center
COL Charles Engel	Director, DHCC at Walter Reed Army Medical Center, Senior Scientist at the Center for the Study of Traumatic Stress, and Associate Professor and Associate Chair at the Department of Psychiatry at the Uniformed Services University School of Medicine
Dr. Lucinda Frost	PDHRA Management
CAPT John Golden	Psychologist, Acting Deputy Director Psychological Health Clinical Standards of Care, DCoE
Dr. (Retired COL) Charles Hoge	Psychiatrist, Researcher
CAPT Sara Kass	Bureau of Medicine (Navy) and Navy Family Practice
Dr. (Retired COL) John Kugler	Head, Office of the Chief Medical Officer, TRICARE Management Activity
Lt Col Hans Ritschard	Director, DoD Psychological Health Strategic Operations, Force Health Protection and Readiness
COL Louis Smith	Physician's Assistant, Army
Dr. Brian Sugden	Project Manager, Reserve Health Readiness Program Force Health Protection and Readiness
COL Heidi Terrio	Chief, Deployment Health, Western Regional Medical Command, Joint Base Lewis-McChord

Appendix F: External Meeting Schedule for Year Four

Table F.1 includes external meetings (Task 6), conducted for planning, educational or informational purposes during Year 4. Note that in Year 4, teleconferences were reduced in favor of frequent email communication.

Table F. 1 External meeting schedule for year four

Date	Description
10-Oct-12	Teleconference with FHP&R . Attendees: VU – Dr. Susan Kelley, Ms. Stephanie Boyd; FHP&R –CDR Nicole Frazer, Ms. Melissa Fraine. Purpose: Regular weekly meeting.
24-Oct-12	Teleconference with FHP&R . Attendees: VU – Dr. Susan Kelley, Ms. Stephanie Boyd; FHP&R –Ms. Melissa Fraine. Purpose: Regular weekly meeting.
7-Nov-12	Teleconference with FHP&R and OTSG . Attendees: VU – Dr. Susan Kelley, Ms. Stephanie Boyd; FHP&R –Ms. Melissa Fraine; OTSG – Ms. Amanda Wagner, Mr. Michael Bustard; Purpose: Regular weekly meeting with transfer of OTSG contact.
19-Dec-12	Teleconference with FHP&R and OTSG . Attendees: VU –Ms. Stephanie Boyd; FHP&R – CDR Nicole Frazer, Ms. Melissa Fraine; OTSG – Mr. Michael Bustard. Purpose: Regular weekly meeting.
23-Jan-13	Teleconference with FHP&R . Attendees: VU – Dr. Susan Douglas, Dr. Stephanie Boyd; FHP&R – CDR Nicole Frazer, Ms. Melissa Fraine. Purpose: Regular monthly meeting.
22-Mar-13	Teleconference with Purdue . Attendees: VU – Dr. Susan Douglas; Purdue –Dr. Sarah Mustillo. Purpose: Discuss Purdue project closure and presentation review.
27-Mar-13	Teleconference with MRMC . Attendees: VU – Dr. Susan Douglas, Dr. Stephanie Boyd; MRMC –Dr. Ronald Hoover. Purpose: Discuss delays in receiving data from AFHSC.
23-May-13	Teleconference with MRMC HRPO . Attendees: VU – Dr. Susan Kelley; MRMC HRPO – Ms. Patricia Shank. Purpose: To discuss documentation necessary for continuing review.
26-Jun-13	Teleconference with FHP&R . Attendees: VU – Dr. Susan Kelley, Dr. Stephanie Boyd; FHP&R –CDR Nicole Frazer, Ms. Melissa Fraine. Purpose: Regular monthly meeting.